



Railway Age

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Contents

B. & A. Builds Modern Engine Terminal at Worcester, Mass. Page 54

An article describing the new steel-concrete enginehouse of the Boston & Albany with its unusual roof design and cork installation which prevents sweating.

New Haven Completing Extensive Communication System 61

H. A. Shepard, general superintendent of electric transmission and communication, New York, New Haven & Hartford, describes coordination of telephone circuits on that road.

Pennsylvania Squeezes Waste Out of Supply Motions 69

W. R. Knauer, supervisor of stores catalog, Pennsylvania, tells of reduced work which followed the placing of stores and purchase routine in a central bureau.

EDITORIALS:

Signal Facilities Increase Utilization of Railway Plant....	49
The First Half of 1928	49
Physical Examinations	50
A Field for Experts	50
Locomotive Operation Through Long Tunnels	51
Pensions—Group Annuity Contracts	51
Variables Affecting Fuel Performance Comparisons	52
What Is the Matter With the Railroads?	52

GENERAL ARTICLES:

B. & A. Builds Modern Engine Terminal at Worcester, Mass.	54
N. & W. Applies Power Tender Trucks for Hump Yard Service	59
New Haven Completing Extensive Communicating System By H. A. Shepard	61
Pensacola Welcomes the Frisco	63

GENERAL ARTICLES—Continued

Great Northern Pacific Unification Opposed.....	63
Lackawanna Ends Year With Lowest Supply Ratio....	64
Howard Elliot Dies	65
Rock Island Diner Highly Attractive	66
Short Lines Exchange Efficiency Ideas	68
Pennsylvania Squeezes Waste out of Supply Motions By W. R. Knauer	69
Barge Canal Freight Costs N. Y. Taxpayers \$3.50 a Ton	72
Computer for Determining the Fuel Value of Coal.....	72
Novel Plan Solves Stub Yard Problem.....	73
Freight Car Loading	74
LOOKING BACKWARD	74
COMMUNICATIONS AND BOOKS	75
ODDS AND ENDS OF RAILROADING	76
NEWS OF THE WEEK	77

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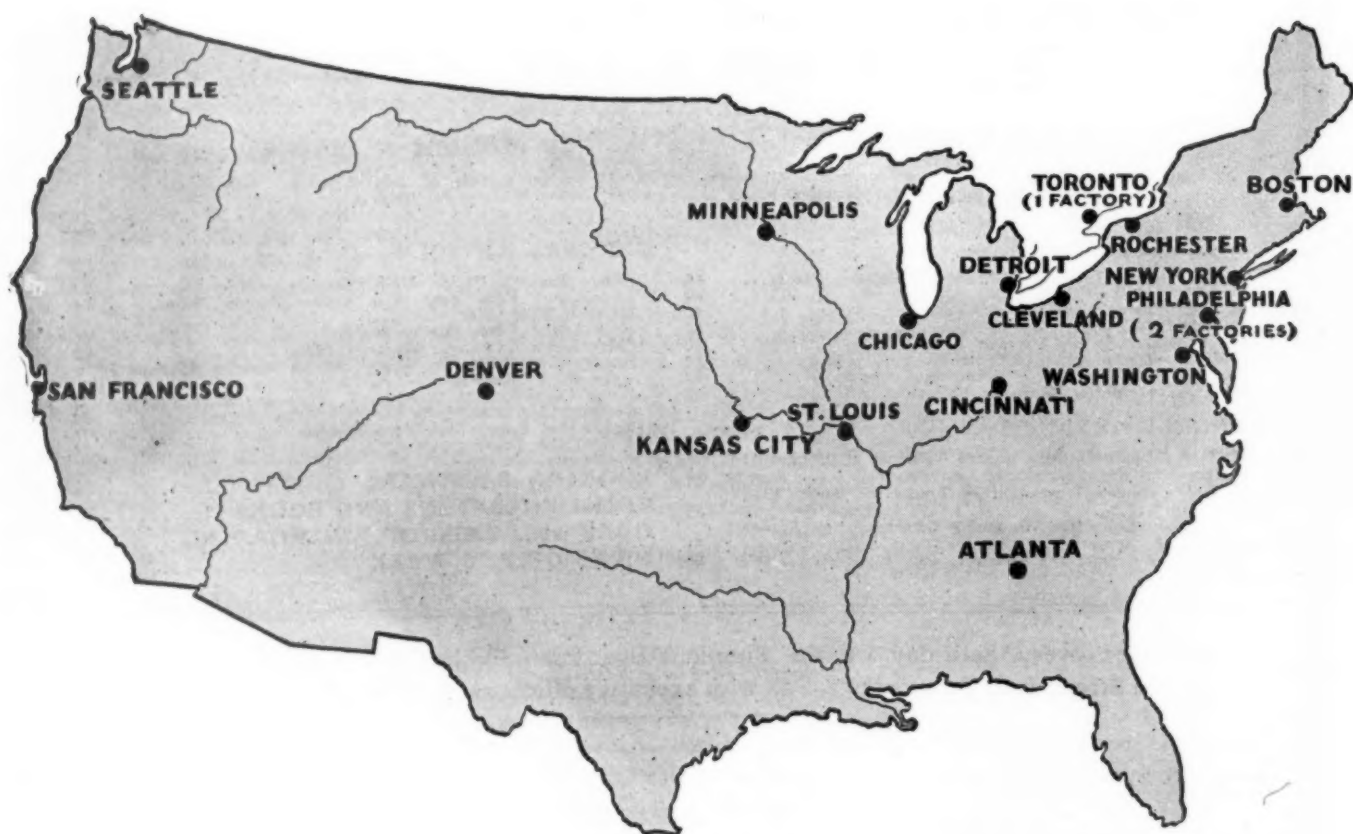
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Railway Age

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Table of Contents Appears on
Page 5 of Advertising Section

Signal Facilities Increase Utilization of Railway Plant

EVERY railway officer is confronted with two major problems, one to reduce operating expenses as much as possible, and the other to secure the fullest utilization of the entire railroad property in order to bring the fixed charges applicable to each ton-mile of freight transportation and to each passenger-mile to a minimum. The two problems are intimately related to each other and one can hardly be considered without the other. The latest developments in signaling facilities give promise of fulfilling both of the foregoing requirements. Manually-operated interlockers have been converted to automatic plants at many places with an appreciable operating saving. The dispatcher-controlled signaling system, which is the most recent innovation in signaling, gives promise of great economies because of the savings in wages of operators as well as in train crew overtime. Mention may also be made of the numerous remote-control installations at outlying junctions which are effecting savings. It is significant that all three of these improvements in railway operation involve the investment of capital and the reduction of manual operation to a minimum. In fact, the tendency in railway development is clearly toward the investment of more capital and the employment of fewer men. By speeding up transportation, it is possible to reduce the number of train-hours required to move the traffic offered a carrier for transportation. A railroad's revenue is dependent directly upon the traffic offered, and this is a fluctuating quantity, intimately dependent upon business conditions and largely beyond the control of the management. Operating expenses, however, can be controlled to a substantial extent, and signaling facilities have demonstrated their efficiency in bringing about noteworthy reductions in operating expenses without a disproportionate increase in fixed charges per traffic unit. Thus, modern signaling facilities fulfill the two major requirements of efficient railway operation.

The First Half of 1928

WITH more than one-half of the year 1928 behind us it is still impossible to detect any evidence of a substantial change, either for better or worse, in the railway situation. The expectation that traffic and earnings would register declines in the first quarter of the year was fulfilled. It was generally anticipated that there would be an increase in car loadings in the second quarter. The joint forecast of the thirteen Regional Shippers' Advisory Boards anticipated an increase of about $3\frac{1}{2}$ per cent. The shippers were too optimistic, however. There was a decline during this period of about $2\frac{1}{2}$ per cent in total car loadings.

The joint forecast of the boards for the third quarter of the year, which has just recently been made public, is still more optimistic. It anticipates an increase of about $6\frac{1}{2}$ per cent in shippers' total requisitions for cars for the loading of the 29 principal commodities. In all but two of the 13 regions of the country represented by the boards an increase in loadings is forecast. Only the Central Western and the Ohio Valley Boards anticipate reductions; and enlarged shipments of 20 out of the 29 principal commodities are predicted. This supports the view expressed in other quarters that general business activity is increasing, although it cannot be said that any such tendency has been decisively indicated, in the car loadings thus far reported.

That most of the railways will be able to report as much net operating income as they will be for the first half of the year will be due to economies in operation. Statistics of earnings and expenses are available as yet for only the first five months of the year. The total earnings of the railroads of the western district increased two-tenths of one per cent, while their operating expenses were reduced $1\frac{1}{2}$ per cent, in consequence of which their net operating income increased from about \$113,519,000 to almost \$126,000,000. On the other hand, the gross earnings of the railways of both the eastern and southern districts declined, and in spite of substantial reductions of operating expenses, they reported declines in net operating income. The gross earnings of the railways as a whole in these five months were almost \$103,000,000 less than in the first five months of 1927, and were, in fact, less than in the first five months of any year since 1922, excepting 1925. Their operating expenses were less than in the first five months of any year since 1922. They were \$1,830,579,871, or almost \$92,000,000 less than in the first five months of 1927; almost \$97,000,000 less than they averaged in the first five months of the preceding five years, and \$198,300,000 less than in the first five months of 1923. In view of the unprecedentedly good service being rendered and of the advances in wages that have had to be absorbed, the reduction in operating expenses effected is highly creditable. A large part of it has been accomplished at the expense of maintenance, but fortunately most railway properties were in unusually good condition before savings at the cost of maintenance became necessary.

A decline in railway earnings has usually caused a decline not only in maintenance but also in capital expenditures, and especially in expenditures for new equipment. Recent purchases of equipment have, however, been abnormally small even for a period of poor earnings. The largest purchases of equipment in many years were made in 1923, when a large amount of new equipment was needed because of the increase in traffic and the effects of the shop employees' strike. On the average, the number of locomotives placed in service during the first five months of the subsequent

four years (1924 to 1927, inclusive,) was 782, while in the first five months of 1928 it was only 670. The average number of locomotives on order at the end of May in these four years was 445, while at the end of May, 1928, it was only 113. The average number of freight cars placed in service in the first five months of the four years ending with 1927 was 48,800, while in the first five months of 1928 it was only 21,873. The average number of freight cars on order at the end of May in the four years ending with 1927 was 39,306, while at the end of May, 1928, it was only 17,847.

Most of the railways have suffered from the effects of the recent depression in business, but probably no other branch of industry has suffered or is still suffering more from it than that which is devoted to the manufacture of railway equipment and the special devices used upon it. It is an important question as to what effects will be produced upon railway service and the economy of operation if the railways continue much longer to make new low records in the purchase of locomotives and freight cars.

Physical Examinations

THE importance of periodical physical examinations is now becoming realized to a much greater extent than has hitherto been the case. In private life and in industry the value of such examinations to the individual, to his family and to his employers is recognized and appreciated.

Many railways, however, have not been entirely alert to the trend of the times, or else have met with such determined and organized opposition from their employees, as to discourage any efforts along these lines. This is unfortunate, because, in railway operation, there is the responsibility to the traveling public to consider, in addition to the individual's duty to himself, to his family and to his employers. We, in this country, instinctively shy at the use of the word "servant", assigning to it only one meaning, that of a household domestic or menial. Railway employees, and particularly those who have to do with the operation of trains are, nevertheless, public "servants", in the higher meaning of the term. As such, they have a direct responsibility to those whom they serve. To shirk it is reprehensible and, in some cases, actually criminal.

Fortunately, in a gradually increasing number of cases, the attitude of railway employees toward physical examinations is changing. No longer are they regarded as an unwarranted invasion of personal liberty, but in many cases they are welcomed as a distinct benefit to the employee and to his dependents, as well as to the employer, and as a duty to those who patronize the railways.

This changed attitude is not by any means as universal as it should be. It must also be admitted that, in at least one case, employees refused to hear of physical examinations until after a fatal accident, which snuffed out the lives of a number of passengers and was caused directly by the poor physical condition of a man in charge of the train, awakened their sense of responsibility. Such an occurrence should not be necessary on any railway before physical examinations can be "sold" to employees. The old arrangement of examining employees more or less casually, when they entered the service, then re-examining them when they were promoted, was all right as far as it went, but it left a large gap between the promotion and the age of retirement, just at the dangerous age when periodical physical examinations were most needed.

The railways that have conducted general physical examinations have found that the physical condition of railway men averages encouragingly high, as compared with that of men of similar ages in other industries. In exceptional cases, however, serious defects have been found. It was one of these exceptional cases that caused the accident previously referred to. Others of these exceptional cases will continue to cause accidents if permitted to go undetected.

A Field for Experts

IS the science of wood preservation a stationary one? Has the technique of timber treatment been developed to the point that a plant operator need only follow a set routine to secure the desired results? If one were to base his answers to these questions on the manner in which some of the railways have selected men for inspection positions in their timber-treating organizations in recent years, his conclusions probably would be in the affirmative, for, with a few outstanding exceptions, when vacancies have occurred they have been filled by the appointment of men with little or no training or experience in the care and handling of timber or in its treatment.

In addition to executive ability men in such positions need special knowledge of the problems with which they must deal. Rather than being a stable, standardized science, timber treatment is constantly undergoing development, and the road or plant which follows an established practice indefinitely, soon falls behind and fails to contribute its share toward the development of the art.

New preservatives are constantly being introduced whose merits can be determined only by careful investigation and trial. The advantage of mixing crude oil or coal tar with creosote for preservative purposes is still questioned on numerous roads. Of equal importance are the problems that are arising by reason of the necessity for resort to new timbers to offset the disappearance of others long standard. Illustrative of this is the gum tie, which is rejected as unfit for use by some roads, and which is being accepted without question by others, when made and handled in accordance with certain well recognized precautions.

The constantly increasing knowledge regarding the care of timber and the precautions to be taken to avoid its deterioration in seasoning is also leading to refinements in handling practices that were unthought of a few years ago. At the same time, these innovations are making it possible to reduce, practically to the point of elimination, losses in timber while seasoning. The value of such discoveries to the railways can be appreciated best by considering the investment normally carried in timber undergoing preparation for treatment at the average wood preserving plant. Such losses can be prevented, however, only by placing responsibility for them on one who thoroughly understands the characteristics of various timbers. The extent to which the average railway plant falls short of the best plants in the country in provisions for the care of its timber, affords a striking illustration of the penalty of inadequate supervision of this highly specialized task.

There is still another opportunity for constructive service of a high order by a capable timber treating operator. This lies in the adaptation of plant practices to the needs of other wood-using services. Immediately before us are the framing of bridge timbers in advance of treatment to eliminate mutilation afterward, and the treatment of car lumber. Other applications of wood

demand study, in the order of their relative importance, to determine whether the economy of treatment which has already been demonstrated so conclusively for ties, cannot be extended also to them.

Rather than being a science that "has arrived," wood preservation in its applications to railway service, can thus be shown still to offer a field for specialized knowledge and ability—a fact which railway managements should realize more fully than they apparently do.

Locomotive Operation Through Long Tunnels

DISAGREEABLE if not unbearable atmospheric conditions in long railroad tunnels have been the prime justification for a number of electrification projects on the American continent, and they are often cited as a fertile field for further development along that line. However, it is interesting to note that steam locomotives are being operated through the two longest railroad tunnels now in service on the western hemisphere, namely the Rogers Pass tunnel on the Canadian Pacific and the Moffat tunnel on the Denver & Salt Lake, approximately five miles and six miles long, respectively. In the case of each of these, electrification was discussed when the project was in its formative stage, but before the bore was completed and ready for use, the possibilities of artificial ventilation were investigated with the result that the idea of electrification was abandoned, at least for the time being, in favor of steam operation with the aid of fans of large capacity. The fact that the fan installation was made at the Moffat tunnel after several years experience with the ventilating system in the Selkirk Mountain tunnel, is evidence that the Canadian Pacific installation has been effective.

It is true that traffic through the Moffat tunnel is light and that that carried through the Rogers Pass tunnel cannot be classed as heavy when compared with the traffic on some other lines. Nevertheless, the success attained in the operation of trains through that tunnel for the last 10 years, has been responsible for a definite postponement of plans for electrification.

Obviously, there are limits to the effectiveness of ventilating systems, and as traffic increases and the interval between reversals of movement through the tunnel is shortened it becomes increasingly difficult to insure against objectionable smoke conditions with the type of ventilating systems now employed in connection with steam operation of railroad tunnels. But rapid advance is being made in the art of tunnel ventilation, as witnessed by the success attained in the ventilation of the Holland highway tunnel under the Hudson river, where a difficult problem arising from an entirely different but equally dangerous condition has been solved with outstanding success.

It is, therefore, not unreasonable to assume that further improvements can be made in equipment for the control of atmospheric conditions in long railroad tunnels that will permit of the handling of a heavier traffic with steam locomotives than is possible with the systems of ventilation now employed. When, however, the traffic has attained a volume such as to tax the capacity of a single-track line, the presence of the tunnel may become a barrier primarily by reason of the great cost of constructing a duplicate bore for second track. In such cases electrification frequently offers a solution because of the greater speed of trains readily attained under maximum tractive effort rather than because of the elimination of smoke.

Pensions -- Group Annuity Contracts

IN the twentieth annual report (1925) of the Carnegie Foundation for the Advancement of Teaching, this statement appears: "Developments of the year in the field of industrial pensions seem to reveal two welcome tendencies in the direction of soundness: the first, toward funding pension obligations in advance; the second, toward contractual security. The second tendency is possible only when the first has been fulfilled."

What caused this optimistic statement? Briefly, retirement plans which have been adopted by three important organizations, which, while differing more or less in detail, were all based on group annuity contracts. The New York Stock Exchange retirement plan was typical of these. In introducing a description of it, the Carnegie report said: "When one of the greatest existing financial agencies, after due consideration and study, adopts a retirement plan for its 551 employees, it is to be expected that the system will embody soundness, definite contractual security and simplicity. These are precisely the qualities that distinguish the retirement plan of the New York Stock Exchange and affiliated companies."

The plan, in brief, is to purchase for each employee, for each year of service, an annuity beginning at the age of 65, the amount of which will depend upon the weekly salary. Any employee who elects to contribute three per cent of his salary to the plan may have this service annuity doubled. Once the Stock Exchange has made its annual contribution, its control ceases over the funds credited to employees who remain in service, the retirement benefits being secured by individual contracts between the employees and the Metropolitan Life Insurance Company. If an employee resigns from service he may continue his regular deposits and receive at retirement the full annuity purchasable by his own accumulations, or he may take a paid up policy for an annuity to begin at the age of 65, or he may draw his own contributions in one sum without interest. If an employee dies before retirement, the beneficiary will receive the total sum of the employee's deposits. If death occurs after income payments have begun, the beneficiary will receive whatever balance may remain from the retired employee's own accumulations in the plan. While the conditions specify that the plan may be amended at any time, it is specifically stated that "no future change shall, in any way, affect the superannuation benefits payable under service annuities offered under the plan as to service rendered; or disability benefits occurring prior to such change."

In the Carnegie report a year later it was noted that eight more organizations had adopted the group annuity contract plan. Its incorporation in industrial retirement plans is comparatively new and limited. Among some of the advantages claimed for it, in addition to those already mentioned, are that an outside responsible and independent party handles the pension funds and that it discharges the pension fund obligations currently. Its adoption by a going concern makes necessary, of course, the raising of a fund to cover the liabilities already incurred for past services rendered.

Such a scheme is foreign to the practices of pension plans thus far adopted by the railways—and to the industrial field as well, until quite recently. Aside from the details, however, it presents an example of certain approved fundamental principles which have been advocated by leading pension authorities in recent years, i.e., the incorporation of the contractual and contrib-

utory features (the latter is optional in the Stock Exchange plan) and the discharging of pension plan liabilities as they are incurred. For this reason, the group annuity contract plan would seem to commend itself under circumstances which are favorable to its use.

Variables Affecting Fuel Performance Comparisons

A correspondent, elsewhere in this issue, takes issue with the method of presenting unit fuel consumption statistics for freight service employed by the Interstate Commerce Commission, on the ground that these figures do not mean just what they say. The points raised are of considerable importance as they are believed to be typical, in some measure at least, of interpretations of these statistics which are not infrequently made. The fact is that the figures for unit fuel consumption do mean just what they say; the difficulty is to avoid assuming that they mean more than they say. They present, as accurately as possible, the quotient of the total fuel consumption in road freight service in pounds, divided by the total traffic moved, measured in units of 1,000 gross ton-miles each. They do not and are not intended to indicate any explanation of why the quotient is higher for one road than for another. The quotient cannot, therefore, be used with propriety as an index of the relative efficiency with which one railroad utilizes its fuel as compared with another. Its value lies only in its use to compare the performance of each railroad at a given period with its own performance in other similar periods.

Our correspondent has indicated several conditions, variations in which make a direct comparison of the average unit fuel consumptions on different railroads inconsistent, the principal ones to which he referred being train speed and train load. Both of these are partially controllable factors. There are other factors, however, which are uncontrollable, such as the character of the railroad as to grades, curvature, and the proportion of branch line mileage, all of which affect the system's average unit fuel consumption. Traffic density and the balance of traffic in opposing directions are also beyond the control of the operating officer and exercise considerable control on the extent to which the average trainload can be built up. The character of the traffic may also justify the development of train speeds high enough to influence the fuel consumption figures adversely. Another important variable, so far as its effect upon the fuel consumption average is concerned, is the wide variation in the number of B.t.u. released in the combustion of a pound of different fuels. Some of the coals of high heating values burned in locomotives release as much as 60 per cent more heat per pound than some of the coals with the low heating values.

Our correspondent in a table showing a comparison of gross ton-miles per train-hour, gross tons per train, and pounds of coal per 1,000 gross ton-miles for four railroads, also includes a comparison of the car-miles per car-day on these railroads. Car-miles per car-day have little, if any, connection with train load, train speed or fuel consumption and, in fact, cannot, with propriety, be used to indicate the relative efficiency with which different railroads handle their car situation. The comparison is more an indication of differences in operation conditions. The road with relatively few traffic originating and terminating points, other conditions being equal, will handle a given amount of traffic with a far smaller number of cars on the line than will the railroad

on which a large part of the traffic is originated or terminated.

Two of the roads shown in this table are oil-burning railroads and two are coal-burning railroads. The question of a satisfactory conversion factor by which to express the oil-fuel consumption in terms of pounds of coal, is one which has been much discussed. Whatever factor may be selected, it must always remain an arbitrary one. It is, however, a great convenience to be able to express fuel consumption rates in terms of a single fuel, on roads which are burning both coal and oil for the purpose of comparing month-to-month trend in the rate of fuel consumed on each road. For this purpose there is no more inconsistency in the use of a more or less arbitrary factor than already results from differences in heating values among coals themselves.

The Interstate Commerce Commission figures for the pounds of coal per 1,000 gross ton-miles tell as accurately as it is practicably possible to make them just what the average fuel consumption on each railroad has been during the period covered. The determination of which railroad has made the most efficient use of its total fuel consumption, however, cannot be made by any statistical analysis; it can only be made after a careful study, on the ground, of many variable conditions which are statistically indeterminate, some of which are and some of which are not controllable by the management.

What Is the Matter With the Railways?

IT is stating only what every well-informed person knows to say that, although the railways are rendering the best service in their history, they have not earned, since the Transportation act was passed, and are not earning now, a net return commensurate with the amount and quality of the service rendered by them, or approaching what it was expected they would earn when the Transportation act was passed and they were returned to private operation.

In an editorial entitled "Helping Business" by Hurting the Railways," which was published in the *Railway Age* of June 30, we referred to the constant pressure of most communities and territories for service and rates that will enable them to compete more successfully with other communities and territories, as one of the causes of this condition, and especially cited as an illustration an argument used by a solicitor for memberships in the Chicago Association of Commerce, that this organization is promoting the development of inland water service and had been helpful in securing a reduction of railway rates to the southeast. We said "We have not cited the attitude of the business interests of Chicago towards the railways because it is exceptional. We have cited it because it is typical."

Some of the business interests of Chicago have protested against certain statements made in this editorial upon the ground that the Chicago Association of Commerce always has favored allowing the railways to make adequate earnings, and recently has supported proposed advances in rates in certain cases now pending before the Interstate Commerce Commission. The *Railway Age* grants that this is true and that, on the whole, the Chicago Association of Commerce has been as fair in its attitude towards the railways as other similar organizations.

We have also received from P. W. Coyle, traffic commissioner of the St. Louis Chamber of Commerce, a

letter which we publish elsewhere in this issue, in which, while he says, "I doubt if anyone familiar with the conditions to which you refer could reasonably question the logic of your analysis," he emphatically insists that the organization he represents always has been, "as we have expressed it on more than one occasion, willing to pay as high a price for transportation as any other community will pay, but we want the very best quality (of service) that can be produced." We concede that the general attitude of the St. Louis Chamber of Commerce has been as stated by Mr. Coyle.

And, as a matter of fact, as we frequently have remarked, the attitude of business men in almost every community and territory is more favorable to the railways than ever before. They know they are getting good railway service. They want it continued. Most of them know and concede that in order that it may be continued the railways must be allowed, in the long run, to earn a fair average return. Nevertheless, it remains true that such a return has not been earned since the railways were returned to private operation; that the average return being earned now is less than at any time since 1922; that in order to keep the return earned from being further reduced the railways are curtailing their capital and maintenance expenditures; and that, in consequence, the tendency is toward a deterioration of service.

Why "Fair Return" Is Not Earned

This general situation is due to several causes, upon each of which we have commented from time to time. Among them are the following:

1. Taxes, wages and other operating expenses were advanced more in proportion than rates during the war and the years immediately following, and the balance never has been restored because of the subsequent tendency of wages and taxes to advance and of rates to decline. As we recently pointed out, the result in 1927 was that increased operating expenses and taxes consumed 99 per cent of the increase in total operating revenues over those of 1916. In spite of this, almost every arbitration board organized under the Watson-Parker act grants an advance in wages.

2. Competition between the railways in both service and rate-making prevents reductions of operating expenses that might otherwise be secured, causes reductions of rates that might not otherwise occur, and prevents advances in rates that might otherwise be obtained.

3. This competition between the railways is largely due to pressure from large shippers in numerous branches of industry, and also to the competitive pressure of different communities and territories. The business men of every community and territory protest that they want the railways to make adequate earnings, but many of them are constantly seeking downward readjustments of rates that they claim are needed to put them on a parity with their competitors, and, with a few exceptions here and there, they oppose upward readjustments.

4. The Interstate Commerce Commission professes an intention to be fair to the railways, and to so regulate rates as to enable those of each group to earn a fair return, but it constantly fails to give effect to its professed intentions. There are cases now pending before it involving proposed advances in rates in western territory, where they are greatly needed, and some of which have been supported by the major business interests affected. But decisions in these cases have been unconscionably delayed. The logic of the situation demands that the western transcontinental lines should be allowed to make lower rates to the Pacific coast than to intermediate points. But, regardless of the effect upon the earnings of the western lines, the commission refuses to

allow this to be done. The commission granted general reductions of rates in 1922 which subsequent developments have shown were excessive, but either because of its own views regarding railroad regulation, or political and other forms of pressure, it persistently fails to do anything to correct the resulting situation.

5. The railways have suffered and are still suffering huge losses of passenger business, the causes of which are well known, and one of which is the unregulated competition with them of motor vehicle common carriers upon highways built at public expense.

6. Railway freight business is not growing as it did before the war, and this makes it harder to bear advances in wages. The increase in tons carried one mile in the 14 years ending with 1913 was 144 per cent, and in the 14 years ending with 1927 only 44 per cent. To a considerable extent this is due to the diversion of traffic from the railways to highways and waterways—especially the Panama Canal. In order to enable them to render adequate service, the railways have greatly increased their capacity by a large investment of new capital. Instead of having inadequate capacity they now have surplus capacity. They need more business to enable them to handle each unit of traffic at the minimum practicable cost and to earn a fair return.

Business Men as Socialists

Meanwhile, business interests agitate for projects to divert more traffic from them such as the development of deep waterways via the Great Lakes and the St. Lawrence river and throughout the Mississippi valley. While constantly proclaiming themselves opposed to all "socialistic" measures, they support and endorse legislation by Congress for government ownership and operation of a barge line service on all parts of the projected Mississippi valley waterways system and to compel the railways to make joint routes and rates in connection with this service to divert traffic from themselves to it. Every one of the influences above mentioned is tending to reduce the net operating income of the railways, to arrest the improvement of railway properties, to hamper the railways in their efforts to reduce the cost of carrying freight, and to cause deterioration of railway service, but when business men are told this they answer that the railways are "doing pretty well," and point to the recent prices of railway stocks. They talk of the development of waterways being of "ultimate benefit" to the railways, and of the government ownership and operation of a barge service as being merely an "experiment" which will be turned over to private enterprise when it is a success. But, obviously, they would not regard with favor measures for the diversion of business from themselves for their "ultimate benefit," or consider desirable an "experiment" in government ownership and operation in competition with themselves.

An important public man once referred to us as a nation of "economic illiterates." It is certainly true that illiteracy regarding the economics of transportation is still widely prevalent among business men as well as farmers, labor leaders and politicians. A Kansas farmer said in a recent article in the "Nation's Business": "I have heard more socialism preached at meetings of commercial bodies than in socialistic gatherings." No business man is a socialist regarding his own business, but about nine-tenths of them seem to be unconscious socialists regarding transportation matters.

The prevailing tendencies in the railroad industry must be arrested, and business men must quit stimulating and help arrest them, if the railroad industry is to be able to make the contribution needed from it to the national prosperity.



The New 15-Stall Enginehouse of the Boston & Albany at Worcester

B. & A. Builds Modern Engine Terminal at Worcester, Mass.

*New steel-concrete enginehouse has unusual roof design
—Cork insulation prevents sweating*

IN order to modernize its engine facilities at Worcester, Mass., the Boston & Albany has completely rebuilt its terminal at that point, enlarging the area available for its facilities, rearranging its tracks to provide greater flexibility of operation, and erecting a number of important structures of modern design to expedite the turning, housing and maintenance of locomotives. Of the new facilities provided, the more important include a 15-stall enginehouse, a machine shop, a two-story terminal office, an office, stores and enginemen's building, a power house, a 200-ton coaling and sanding station, and two electrically-operated ash hoists. These facilities, together with the other improvements and changes, involved an expenditure of approximately \$600,000. It is estimated that they will effect large savings annually, partly through more efficient operation, and partly through the reorganization of forces which they permit.

The new engine terminal is located on the site of the old facilities at Worcester, in the industrial section of the city, about one-half mile from the passenger station. Serving the main line of the road between Boston and Albany, the terminal handles an average of 55 freight and passenger locomotives daily, which are used regularly in service east to Boston, Mass., and west to Albany, N. Y. In addition the terminal handles the power employed in through freight service to the interchange yard of the New York Central at Selkirk, N. Y.

The new terminal lies in a general north and south direction and is approached from the main line by a single lead track, which also serves outgoing power. At the throat of the terminal the single lead branches out into two main enginehouse leads, one for inbound engines, and the other for outbound power. At a point about 400 ft. from the house these two main leads spread to wide centers and connect with a third or intermediate lead to the turntable, which is designed for the use of both inbound and outbound engines. In addition to these three leads, two other tracks have direct connection to the turntable, one of these being a cinder car track, which serves the ash pits, and the other the coal supply track serving the coaling station. So arranged, either of these latter

two tracks can be used as an emergency enginehouse lead if the main leads should become blocked or congested for any reason. The only other track of importance at the terminal is the coal supply track serving the new power plant.

Enginehouse Is of Steel, Concrete and Tile Construction

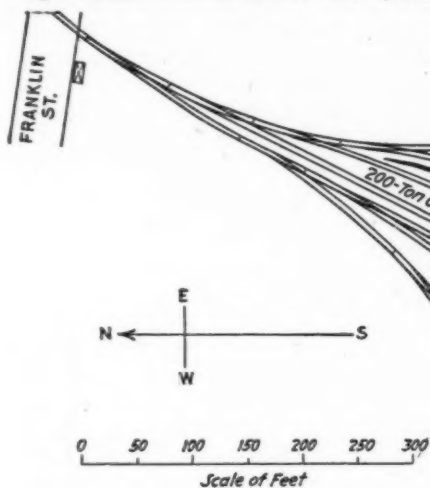
Of the new facilities provided at the terminal the most important is the enginehouse. This structure, which has 15 stalls, each 112 ft. long, is of special interest from the standpoints of both design and construction. It is located at the south end of the terminal, partly on newly excavated land, and partly on the site of the old 12-stall frame roundhouse which was formerly in service at this point.

The new enginehouse, which is built on the arc of a circle, is a tile-walled, steel frame structure with a concrete slab roof, and with all of the steelwork of the roof structure and roof-supporting columns encased in concrete. In designing the enginehouse particular attention was given to the roof structure to secure all of the advantages of concrete construction, and, at the same time provide for maximum daylighting and ventilation. The roof is of the high-low type, the high roof extending around the house over the main central bay, while low roofs form lean-to sections of the house, flanking the main central bay on each side. Both the high and low sections of the roof, contrary to usual enginehouse construction, slope toward the center of the building where water is collected and carried off through cast iron downcomers along the roof-supporting columns. Through this arrangement the smoke and gases which have a tendency to accumulate in the house, have four general avenues of escape, following the upward slopes of the roof to continuous rows of steel sash with center-hung sections, which surround the building at the high points of the roof structure. With this type of roof it is felt that ventilation is not only more complete and rapid than is possible with the conventional monitor-top type, but that better daylighting is effected through the tendency of the roof to reflect the light and to deflect the light rays downward.

In utilizing concrete in the roof structure, primarily to afford fireproof construction and to secure the advantage of reduced radiation, the main problem encountered was to preclude sweating or condensation on the under face of the roof. This was considered of large importance for in certain instances condensation on concrete enginehouse roofs has been so extensive as to keep the floors of the houses wet continually, much to the discomfort and inconvenience of the employees.

Cork Insulation Prevents Roof Sweating

In order to preclude such a condition at the Worcester enginehouse, together with the tendency of the concrete to develop hair cracks where it is exposed to enginehouse condensation, the 3½-in. slab forming the



General Layout of the New Terminal Facilities at Worcester

roof was overlaid with a two-inch course of corkboard, which in turn, has been covered with five-ply built-up roofing. The results obtained through this type of roof construction have been entirely satisfactory, condensation having been reduced to a negligible amount.

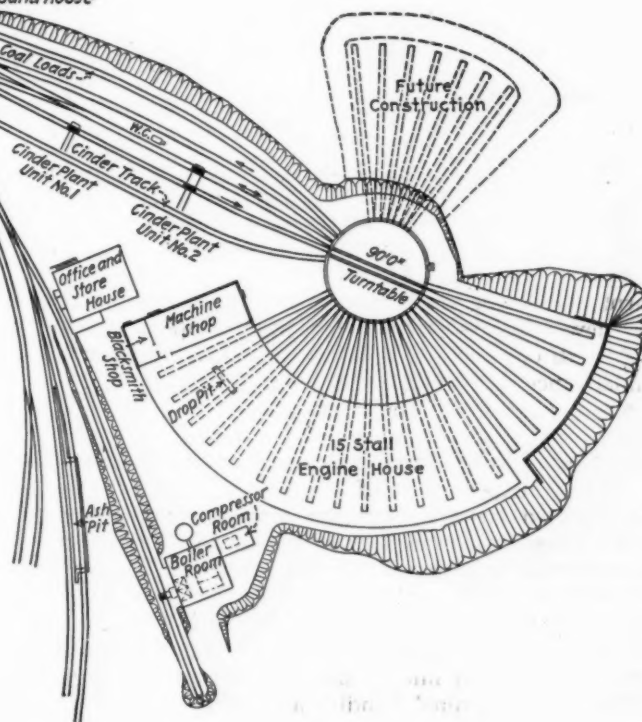
In the general layout of the house the entire floor area is unobstructed except for the three rows of concrete-encased, steel roof-supporting columns. These columns are located centrally in the working space between each two stalls, and therefore interfere to a minimum extent with employees in carrying out their work. In order to prevent damage near the floor, each column is protected at the base, on all four sides, by steel casing about seven feet high.

The floor of the enginehouse is of concrete throughout, 6 in. thick, consisting of a 5-in. base course of 1-3-6 concrete, and a 1-in. wearing course of 1-3 concrete with Master Builders hardener. The entire floor area is laid on an 8-in. well-tamped cinder fill. The sash throughout the house are of steel and extend over large areas around the outer ring wall, as well as in all vertical faces of the roof structure. All of the ventilating sash are of the center-hung type, regulated by hand chains from the floor. The doors of the house are of the simple-hinged double-swinging type, opening outward against stops between the enginehouse tracks. All of these doors are of wood construction, the upper half in each case being fitted with sectional windows to afford additional daylighting to the house when the doors are closed.

House is Well Equipped

Each of the 15 stalls of the house is equipped with a concrete inspection pit, 85 ft. 6 in. long and varying in depth from 3 ft. at the inner end, to 3 ft. 6 in. at the outer end. In addition to the inspection pits, two of the stalls near one end of the house are equipped with a driver drop pit which is served by a Whiting drop pit table, and one of the pit tracks is fitted with removable spring rails whereby locomotive wheels can be dropped sufficiently to permit the removal and replacement of springs. All of the pits are kept dry by six-inch drains at their inner ends, these being joined together by a 12-in.-10-in. collecting drain which encircles the house.

In order to preclude the spalling and disintegration of the concrete directly beneath the pit track rails, these rails rest on the back face of continuous 12-in. channels, which are anchored in recesses along the top of the pits by rods which extend down into the concrete at intervals of about four feet. Through holes in these channels, hook-bolts secure rail clips spaced 2½ ft. center to center, which in turn hold the rails in place.



In order to prevent the over-running of the pit tracks, the end of each track is equipped with rail chocks, and immediately beyond, each pit is equipped with a pit fall section, which is covered with light planking, this type of construction having been adopted in order to avoid the obstruction and hazard of surface bumpers. As a protection to the house in case of a locomotive over-running and not being stopped by the pit falls, the panels in the outer ring wall directly beyond the ends of the pit tracks, are non-load bearing, and are joined to the roof supporting wall sections by plaster cement. Through this type of construction, a locomotive over-running its pit will cause a minimum of damage to the enginehouse.

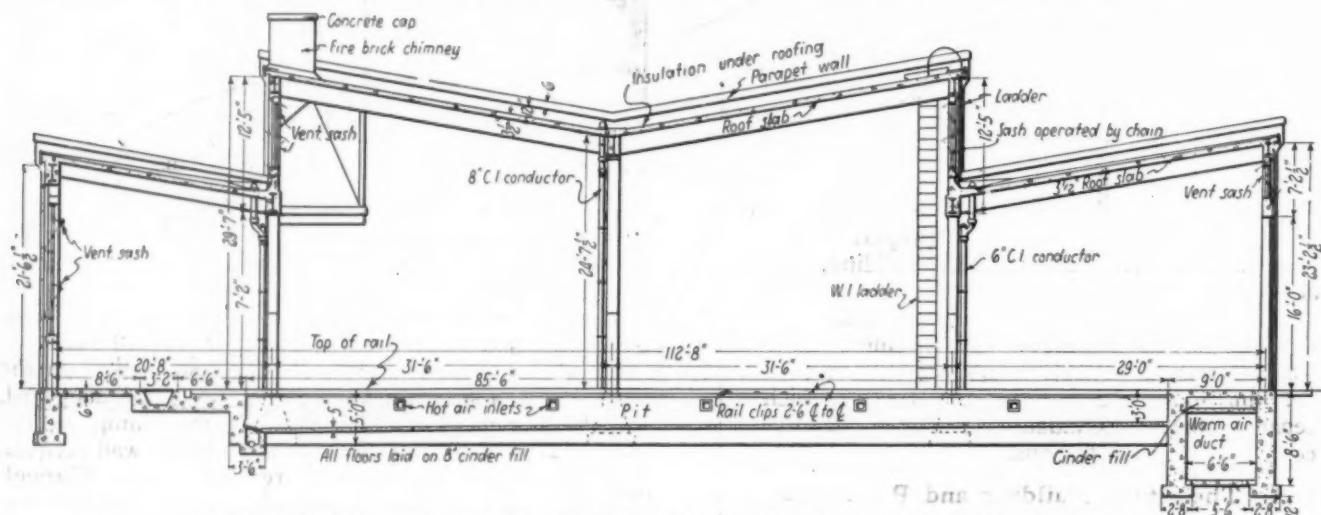
The direct smoke exhaust system at the house consists of built-up, sheet asbestos smoke jacks at the head end of each pit track, which collect the direct smoke and gases from standing locomotives and carry them through the

roof. In order to make this system more positive, both sides of each jack are equipped with low-hanging concrete curtains which fit down over the stacks of the locomotives. As no such curtains are provided at the ends of the jacks even the highest locomotive stacks can be spotted under the jacks without difficulty. In addition to this special feature to preclude the escape of smoke and gases into the house, special protected openings have been provided along the sides of each jack where they pass through the roof, to permit the escape of such smoke and gas as may not be caught by the smoke jacks, or as may collect while locomotives are entering or leaving the house. These special features for ventilation are, of course, supplemented by the ventilating sash in the outer ring wall, and along the vertical faces of the roof structure.

The enginehouse is heated by the indirect system, the steam being supplied by the new terminal power house. The steam for the system is received at the machine shop adjacent to the enginehouse, where Sturtevant blower equipment forces clean fresh air through steam coils, and

house. The water and steam lines within the house are used primarily in connection with the Nathan boiler tester and filler employed for washout purposes and for making hydrostatic tests.

Special equipment and facilities at the house, other than that already mentioned, include small cast iron work benches equipped with vises and placed between adjacent pits, a portable work bench and outfit, adequate gas welding equipment, and a portable crane truck with a telescoping boom which is used for handling heavy parts on and off locomotives. The work benches provided at each stall are located adjacent to the center row of roof-supporting columns, and to insure adequate light at these points, electric light plugs have been provided in the columns directly above each bench for such lighting as may be necessary. The arc welding outfit mentioned, which was furnished by the U. S. Light & Heat Corporation, can be transported readily to any point within the house, and can be plugged into any one of the welding circuit outlets which have been provided around the outer ring wall, directly beneath the flood lights.



A Typical Section Through the New Enginehouse Showing the Unusual Roof Design

then into a large sub-surface concrete duct which extends around the inner side of the house. This duct has openings along both sides of each inspection pit, connected with auxiliary ducts which carry the heated air into the pits at intervals throughout their length. The capacity of this system is such that it is possible to make six complete changes of the air within the house each hour, and to maintain a temperature as high as 70 deg. F. during even the coldest weather.

Artificial lighting of the house is accomplished entirely by flood lights, two such lights being mounted overhead on the outer circle wall directly in line with the working space between each pair of track pits. These lights, which have a rating of 200 watts, are of the adjustable type and are controlled separately by wall plugs directly beneath them. While these lights afford adequate illumination for all general work about the house, electric outlets are provided at all of the center columns, where connection can be made for extension cord lights and welding.

Service piping throughout the house consists of steam lines, air lines and water lines, steam and air drops being provided at each of the columns at the head end of the pits, and three-inch water connections at the head end columns between alternate pairs of stalls. These drops, together with electric circuit plugs, make it convenient to use either electric or pneumatic tools in any part of the

In order to make it possible for mechanics to keep a close check on their tools, and at the same time to minimize the time spent in securing and returning tools to the tool room, each mechanic is provided with a portable, all-welded tool box, on which his number is painted. These boxes are kept in an orderly row along the outer ring wall of the house. The use of these boxes has not only brought about the desired results, but has also made it possible to reduce the size of the tool room required in connection with the enginehouse.

For turning power at the house, a new 90-ft. turntable has been provided which operates within a concrete pit. This table, which was furnished by the American Bridge Company, is of the three-point support, continuous type, operated by an electric motor at each end.

Machine Shop Is a Well Equipped,

Fireproof Structure

A new machine shop, approximately 112 ft. long by 40 ft. wide, is located adjacent to the north end of the enginehouse. Like the enginehouse, this unit is a concrete-encased steel frame structure, one story high, with a concrete foundation, a steel and reinforced concrete roof, and tile exterior walls. The roof of the shop, which is supported by the side walls and a center row of encased steel columns, is made up of concrete-encased steel girders which carry a 3½-in. flat roof slab. In

order to provide for drainage, the roof is divided longitudinally into four sections in accordance with the column spacing, and each section has been given a slight pitch toward the columns where cast iron drain pipes carry the water down through the building to a storm sewer. In providing a suitable pitch over each section of the house, cinder concrete was placed on top of the flat roof slabs and covered by five-ply built-up roofing.

The machine shop is divided into four main sections; the machine shop proper, which occupies the central part of the building; a blacksmith shop, which extends across one end; and an air brake room and a fan room, which occupy the other end. In addition to these main sections, separate areas are also provided for a tool room and for charging batteries.

The flooring throughout the building, with the exception of that in the blacksmith shop, is of three-inch creosoted wood blocks supported on a five-inch concrete base, which in turn rests on an eight-inch, well-tamped cinder fill. In the blacksmith shop the flooring consists of 12 in. of rolled cinders.

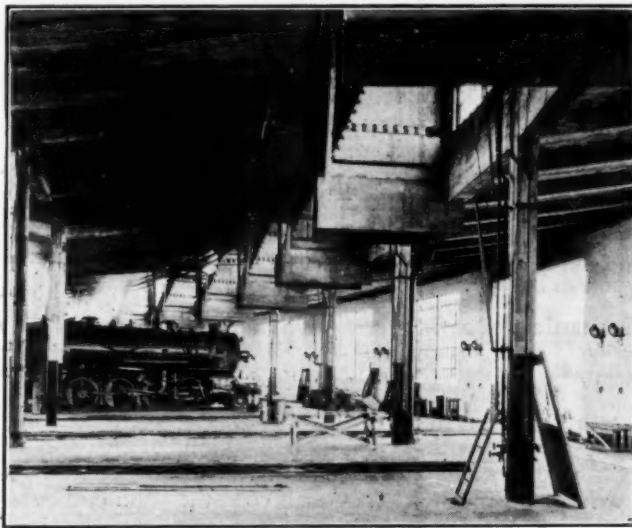
One of the notable features of the shop is the adequate daylighting and ventilation provided, large areas of fixed steel sash with two rows of center-hung ventilating sash having been provided in each end of the building and along the side opposite the enginehouse. Further ventilation is supplied by ventilators in the roof over the blacksmith shop. The only openings between the enginehouse and the machine shop consist of two large doorways, one 10 ft. wide into the blacksmith shop section, and the other 8 ft. wide into the machine shop proper. Both of these openings are fitted with automatic, sliding, tin-clad fire doors.

The equipment within the shop includes all of the machine tools necessary for the handling of all classes of running repairs, the shop being especially well fitted for handling rod work. All of the machines, which rest on separate concrete foundations, are motor-driven, and are controlled by push buttons.

The Office Building and Power Plant

The new office, storehouse and enginemen's rest building is located just north of the machine shop, and, like

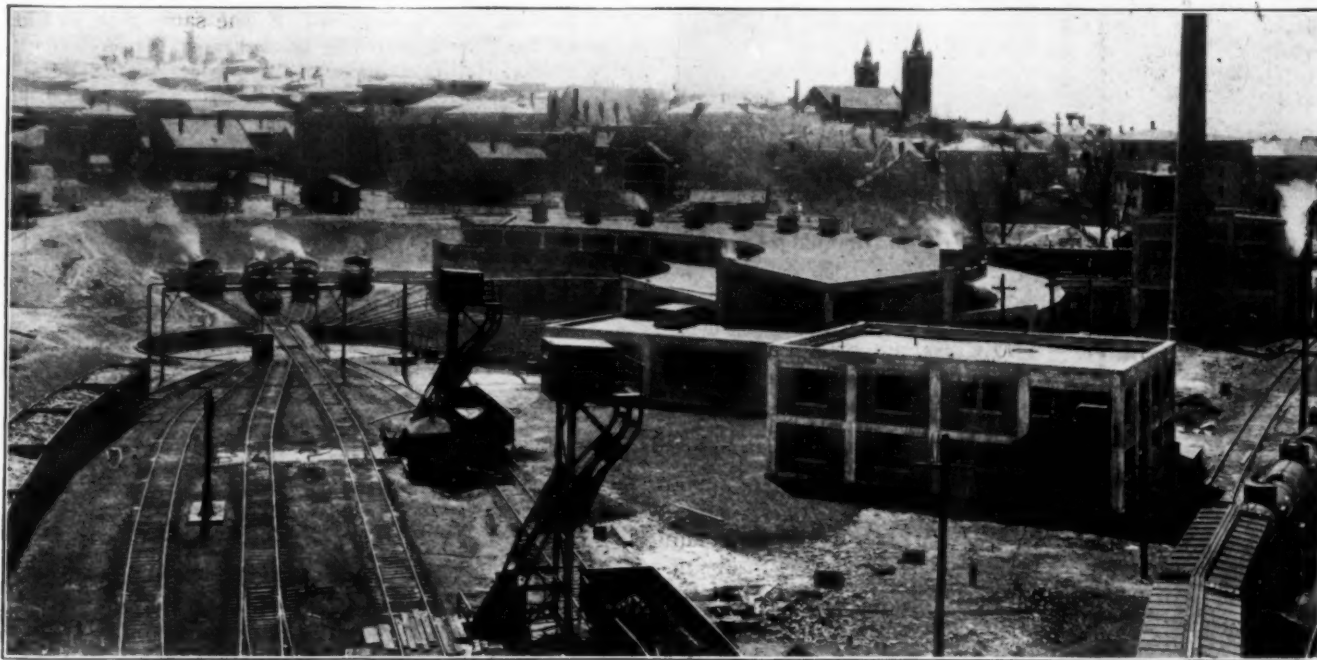
that building, is a steel and reinforced concrete structure with tile exterior walls. This building, which is two stories high, is approximately 66 ft. long by 50 ft. wide. In the division of the floor area within the building the first floor is occupied by the general foreman's office, a dispatcher's office, an engine crew's register room, and a



The Well-Lighted Interior of the Enginehouse Showing the Special Smoke Jack Construction

locker room and lavatory for the engine house forces, in addition to a room at one end for the storage and distribution of oil. The second floor contains a large rest room, separate wash and locker rooms, and a sleeping room with six single cots for engine crews.

A feature of the engine crews register room on the first floor is a special revolving crew board. This board, which is mounted on center pivots at the ceiling and the floor, revolves in an opening in the partition wall between the dispatchers' office and the register room. Through this arrangement the board can be revolved from either side of the partition, and can thereby be used with facility by either the dispatcher's clerk or the engine crews.



A View From the Coaling Station Overlooking the New Terminal Facilities

The power house, which is located directly back of the center of the enginehouse, is a steel frame, concrete and tile structure, divided principally into a large boiler room and a small compressor room. The principal equipment within the plant consists of two stoker-fired Heine cross-drum vertical-tube boilers, each with a rating of 300 hp., a Reily feedwater heater, two Warren boiler feed pumps, and an Ingersoll-Rand steam-driven air compressor which has a capacity of 823 cu. ft. of free air per minute. Draft for the boiler plant is secured through a 150-ft. radial brick stack, supplemented by a blower driven by a Terry turbine.

Coal at the plant is received in carload lots over a special power plant track, and is dumped into a track hopper from which it is elevated to overhead steel coal bunkers within the house, having a total capacity of 50 tons. Ashes from the boilers are removed by a vacuum-type ash blower.

Mechanical Coaling and Ash Handling Facilities Provided

The new coaling and sanding station, which is located about 500 ft. north of the turntable, is a reinforced concrete structure with a capacity of 200 tons of coal and 12 tons of dry sand. This station, which was erected by Fairbanks, Morse & Co., extends over the main outbound



The New 200-ton Concrete Coaling and Sanding Station

engine lead, serving that lead and also the main inbound lead adjacent to it. The station is of the mechanical type, coal being received over a track hopper and elevated to bins at the top of the station by a chain bucket conveyor which has an elevating capacity of 55 tons per hour.

The sanding facilities provided consists of a wet sand storage area, a sand drying house, and an eight-cubic yard dry sand storage bin which is located overhead in the coaling station. Drying of the sand is effected by a Beamer steam sand drier, which is supplied with steam from the terminal power plant. The dry sand is elevated to the coaling station by compressed air, from which it is delivered to locomotives by gravity.

The ash pits at the terminal, which were also furnished by Fairbanks, Morse & Co., are located about midway

between the coaling station and the enginehouse and serve the two leads used principally by inbound engines. There are two of these pits, one serving both leads, while the other serves only one lead. Both of the pits are of the mechanical type, with 1½-in. water connections on each side of the tracks for cooling the ashes and for flushing ash pans. Ashes from the locomotives are collected in a track hopper and then discharged into a conveyor car which operates on a narrow gage track at the bottom of each pit. In disposing of the ashes, the ash car is hoisted up an incline at the end of the pit, and at a predetermined point is dumped automatically, discharging its contents directly into a cinder car spotted on the cinder car track. Both pits are operated electrically, and so controlled by push buttons that it is possible to stop the conveyor car at any position in its travel from beneath the track hoppers to the point of discharge over the cinder track.

Excavation Work

Other work in connection with the enlarged and modernized terminal included the excavation of about 23,500 cu. yd. of earth and 1,500 cu. yd. of rock; the installation of approximately 4,000 ft. of drain pipe and 1,300 ft. of sanitary sewers; and the installation of two 10-in. Poage water columns with direct connection to the city water supply through a new 6-in. water line.

All of the new facilities were planned under the direction of F. B. Freeman, formerly chief engineer of the Boston & Albany, and now chief engineer of the New York Central, Buffalo and East, and G. A. Kirley, now chief engineer of the Boston & Albany, cooperating with officers of the mechanical department. The actual construction work was carried out under the general supervision of Mr. Kirley, and under the direct supervision of E. K. Mentzer, principal assistant engineer, who was represented in the field by H. E. McGregor. All of the track and building construction work at the terminal was done by the J. F. Fitzgerald Construction Company, Boston.

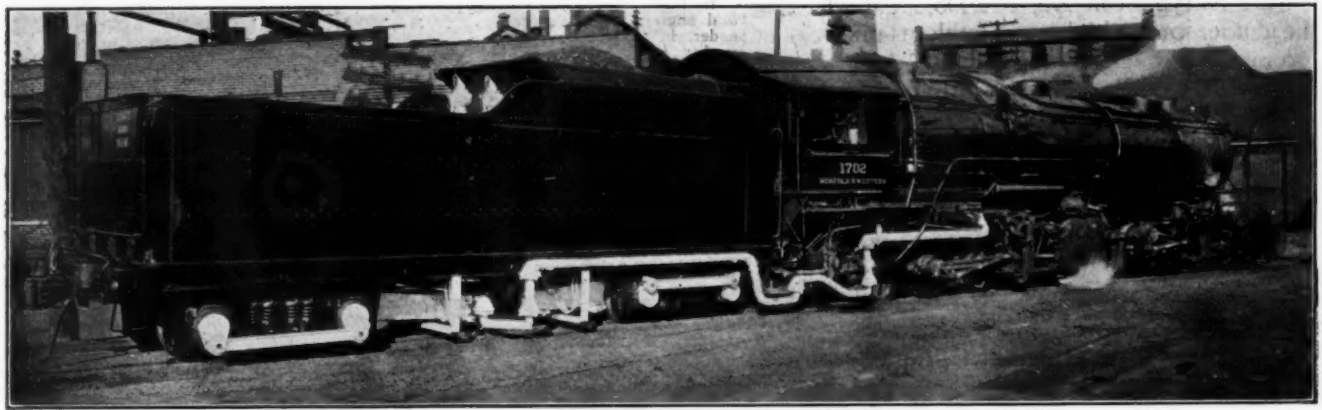
ONE WAY OF MEETING COMPETITION. A project for the establishment of gasoline tanks in 200 Swiss stations, from which gasoline will be dispensed to motorists by the station personnel, has been approved by the Board of Directors of the Swiss Federal Railways, according to advices to the Department of Commerce.

The prospective concessionaire agrees to transport all of the gasoline by rail to the various stations and in return the railway is forbidden to accord to any other company, any similar concession under more favorable terms. The proposal has yet to be approved by the Parliament.

* * *



On the B. & A., near Weston, Mass.



Norfolk & Western 2-8-8-2 Type Locomotive Equipped with Franklin Reversible Boosters

N. & W. Applies Power Tender Trucks for Hump Yard Service

Additional power enables Mallets to classify full tonnage trains at East Portsmouth, Ohio

DURING the summer of 1927, the Norfolk & Western equipped the tender of one of its 2-8-8-2 type locomotives, No. 2006, with two Bethlehem auxiliary locomotives with the object of providing sufficient additional tractive force to move full-tonnage trains over the hump of the classification yard at East Portsmouth, Ohio. Several months later, a second locomotive, No. 1702, of the same type, was similarly equipped with two Franklin reversible boosters.

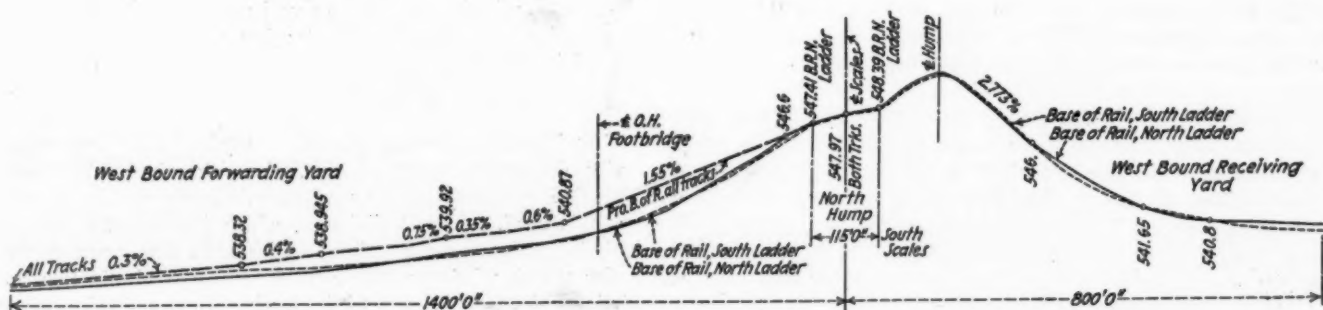
The East Portsmouth yards are located near the junction of two lines running to Columbus and Cincinnati and is the classification point for all freight moving to those two cities and intermediate points. The average capacity of the yard track at East Portsmouth is 100 cars.

The locomotives equipped with the auxiliary locomotives and tender boosters are of the same type and design as those used by the Norfolk & Western for regular main-line freight service in that territory. The additional tractive force enables these two locomotives to push over the hump at East Portsmouth, trains having a tonnage equivalent to that which locomotives of

the same type are expected to haul on the road, without the assistance of a booster or auxiliary locomotive. Tests with both boosters have demonstrated that trains of 100 cars, averaging 9,000 tons, can be handled satisfactorily up either side of the hump in regular daily operation. The maximum load handled up to the present time over the hump has been a train of 120 cars of 10,360 tons.

The Auxiliary Locomotive Application

The application of the auxiliary locomotives, which were furnished by the Bethlehem Steel Company, Bethlehem, Pa., is practically the same as the application made to the six-wheel trucks under the tenders of the Missouri Pacific 2-8-8-2 type locomotives, which were described in the December 17, 1927, issue of the *Railway Age*, page 1221. The tender was originally carried on two six-wheel trucks, which have been replaced with two auxiliary locomotives. The tender has a coal capacity of 18 tons and a water capacity of 12,000 gal. Its total loaded weight is 264,040 lb. and the light weight 128,040 lb.



Profile of the Hump at the Norfolk & Western Classification Yard, East Portsmouth, Ohio

The 2-8-8-2 type locomotive, No. 2006, behind which the tender equipped with the two Bethlehem auxiliary locomotives was placed, exerts a tractive force of 107,373 lb. This, together with the tractive force of 34,500 lb., furnished by the two auxiliary locomotives, provides a total tractive force of 141,873 lb. A few of the principal dimensions, weights and proportions are given in a table.

Principal Dimensions and Data of Locomotive No. 2006

Type of locomotive	2-8-8-2
Service	Switching
Cylinders, diameter and stroke	25 in. and 39 in. by 32 in.
Weights in working order:	
On drivers	478,000 lb.
On front truck	28,000 lb.
On trailing truck	25,000 lb.
Total engine	531,000 lb.
Tender, loaded	264,040 lb.
Wheel bases:	
Driving	15 ft. 9 in.
Total driving	42 ft. 4 in.
Total engine	58 ft.
Driving wheels, diam. outside tires	57 in.
Steam pressure	240 lb.
Total heating surface	7,639 sq. ft.
Grate area	96.3 sq. ft.
Tractive force	107,373 lb.
Tractive force, two aux. locos.	34,500 lb.
Total tractive force	141,873 lb.
Factor of adhesion, engine	4.45
Factor of adhesion, tender light	3.72

The tender boosters, furnished by the Franklin Railway Supply Company, Inc., 17 East Forty-second street, New York, are of the reversible type, which was

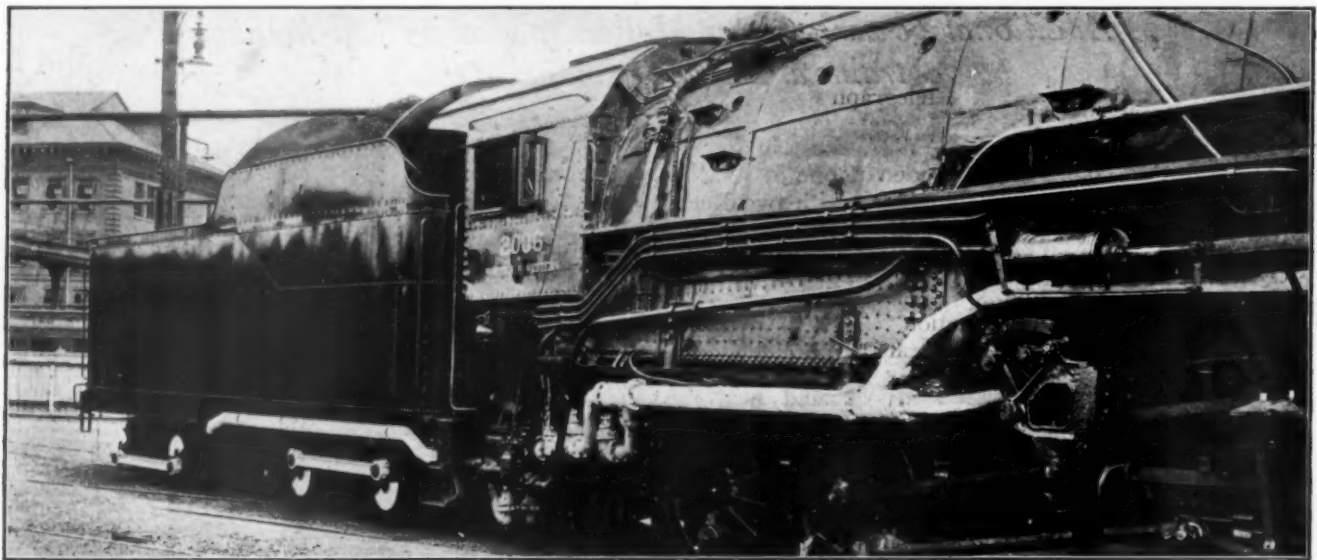
On trailing truck	27,500 lb.
Total engine	526,000 lb.
Tender, loaded	262,030 lb.
Wheel bases:	
Driving	15 ft. 6 in.
Total driving	42 ft. 1 in.
Total engine	57 ft. 4 in.
Driving wheels, diam. outside tires	56 in.
Steam pressure	240 lb.
Total heating surface	7,850 sq. ft.
Grate area	96 sq. ft.
Tractive force	109,286 lb.
Tractive force, two boosters	33,900 lb.
Total tractive force	143,186 lb.
Factor of adhesion, engine	4.31
Factor of adhesion, tender light	3.88

Operation of the Yard

Frequent movement of trains over the hump is necessary due to the limited track capacity of the East Portsmouth yards and the location of the main tracks with respect to the yard itself. Although the normal operation is to receive incoming trains in the westbound receiving yard and to classify the cars as they go over the hump to the forwarding yard, the limited capacity requires trains to be classified in both yards.

Outlets to the west and eastbound main tracks are provided at opposite ends of both the receiving and forwarding yards. Thus, trains can be moved from the yard to either the west or eastbound tracks in either direction.

Referring to the profile drawing of the hump portion of the yard, the maximum grade up the east side of the



Locomotive No. 2006 Equipped with Bethlehem Auxiliary Locomotives

described in the May 12, 1928, issue of the *Railway Age*, page 1109. The tender under which they were applied was originally carried on four-wheel trucks. It has a coal capacity of 16 tons and a water capacity of 12,000 gal. The total loaded weight of the tender is 262,030 lb. and the light weight is 131,530 lb.

Locomotive No. 1702, the tender of which is equipped with the two Franklin reversible boosters, has a tractive force of 109,286 lb. Adding to this the tractive force of 33,900 lb. furnished by the two boosters, provides a total tractive force of 143,186 lb. The table gives a few of the principal weights, dimensions and proportions of locomotive No. 1702.

Principal Dimensions and Data of Locomotive No. 1702

Type of locomotive	2-8-8-2
Service	Switching
Cylinders, diameter and stroke	25 in. and 39 in. by 32 in.
Weights in working order:	
On drivers	472,000 lb.
On front truck	26,500 lb.

hump is 2.773 per cent and the maximum grade up the west side is 2.3 per cent. However, the pocket in the north and south ladders on the west side of the hump, which has a ruling grade of a little over 2 per cent, presented difficulties in the way of getting trains over the hump, which were not solved satisfactorily until the locomotives equipped with tender power trucks were placed in service.

THE MISSOURI PACIFIC operated a total of 10,706 passenger trains, during the month of May, of which only 139 lost time. This 98.7 per cent on-time performance is a new high record for this road. Several divisions, which included the Illinois with 194 trains and the Colorado with 120 trains, operated the entire month without a single train coming to destination behind schedule, while the Little Rock, Wichita, White River and Northern Kansas divisions each had only one train late for the entire month.

New Haven Completing Extensive Communication System

Local and long distance telephone circuits co-ordinated to secure greatest economy in railway operation

By H. A. Shepard

General Superintendent of Electric Transmission and Communication, New York, New Haven & Hartford

THE New York, New Haven & Hartford was one of the first roads to adopt the telephone and develop its possibilities for railway communication. Progress has been achieved by keeping pace with the advance in the general field of telephony, and also by individual engineering effort, the aim being to provide a communication plant which would meet fully the requirements of economic railroad operation. By the end of this year, when the plant now under construction is completed, there will remain only a small program for 1929, to round out a most comprehensive telephone system for all branches of railway service.

Telephone dispatching equipment, circuit requirements and advantages of telephone over telegraph dispatching are so well understood that this article, the intent of which is to outline generally the several applications of the telephone to railroad requirements, will deal only briefly with dispatching facilities.

Private Branch Exchanges

It is necessary for the general offices, division headquarters, traffic centers and shops to have means of direct and immediate communication with each other. This requirement is met by private branch exchanges, of which there are 22 on the system, originally interconnected by leased trunk circuits and now entirely by trunk circuits owned and maintained by the railroad along its right-of-way. Many of these trunk circuits, involving practically the entire system, are phantom circuits operating over properly constructed and transposed dispatching and message circuits, the balance, consisting of single



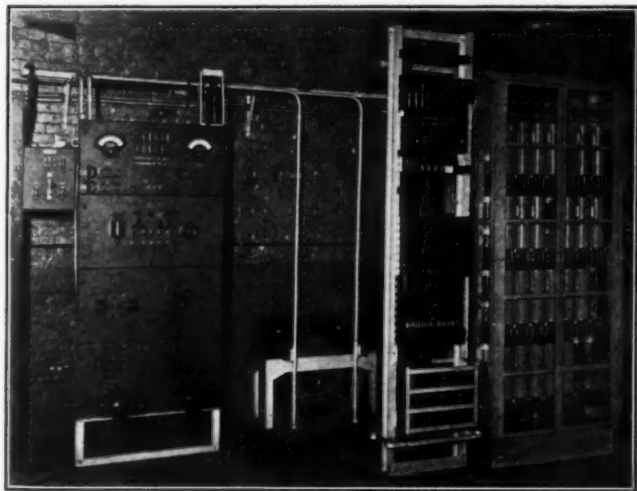
Train Dispatchers' Office at Providence, R. I.
—Note Loud-Speaking Telephone

circuits or phantom groups, being provided to meet the service requirements. In addition to intercommunicating service at and between the private branch exchanges, connections are established into the Bell system for conversation from any private branch exchange on the system.

From any private branch exchange telephone, a connection may also be established with any freight, passenger or signal station, traffic supervisor's office, engine-house, yard office, etc., on the system via message circuits which are explained hereafter, or via phantom circuits which terminate at only one private branch exchange location and which are arranged for party line service and connected with important stations. At the larger terminals, such as Boston, Mass., New Haven, Conn., Hartford and New York, semi-mechanical equipment is in use, the New Haven installation being the first of its kind for railroad service connecting to the Bell system.

In the larger cities, Pullman reservation telephone boards are located in ticket offices, and train and rate information boards are located generally in the dispatching offices, each having separate groups of trunks into the Bell system with separate directory listings. Both groups "multiple" into the private branch exchange and there are separate groups of trunks from the private branch exchange to each of the other boards. Thus, by means of order wires, an incoming call to either the private branch exchange, Pullman reservation board or train information board, can be transferred and serviced from all three points on one call from the city exchange, thus rendering the most economical and convenient service to the public.

At points where private branch exchanges are not available, telephones are provided at freight and passenger stations and at other points as required, connecting direct with the Bell system exchanges for the handling of local general business with the public. Auxiliary exchanges are located in large shops and power stations as required for local intercommunicating service and for connections through private branch exchanges to all other points on the system as well as for connections with the



Auxiliary Dial Service Private Branch Exchange Unit at Car Shops, Readville, Mass.

Bell system. Either mechanical or manual equipment is used, depending upon the conditions and service requirements. At large shops, mechanical systems are used for general and special intercommunicating service.

Train and Load Dispatching

Dispatching on the entire New Haven system is handled by telephone, the first circuit having been installed early in the development of equipment for this service; this has been gradually extended until the entire system was completed in 1927. As the telephone dispatching circuits were being constructed and office equipment installed, provisions were made for full telephone operation, anticipating the installation of telephone message and block circuits. This involved, in the majority of cases, provision for pin space, office cables of sufficient capacity, jack boxes and other office equipment that could be installed economically.

Coincident with electric operation between New Haven and New York, communication circuits and equipment similar to that used in train dispatching service were installed for the load dispatching service.

Message circuits connect by means of jack boxes with telephones used in train dispatching service and, in addition, with freight and passenger stations and other offices not provided with train dispatching service. These circuits, in addition to handling the divisional message service formerly handled by Morse and providing an auxiliary circuit for dispatching in the event of trouble, connect with private branch exchanges, thus permitting the establishment of connections from all private branch exchange telephones to all telephones connecting with message circuits, thereby completing the intercommunicating system and making it possible to talk between any two telephones on the system.

Where telegraph blocking was formerly employed, telephone circuits have since been installed, coincident with the installation of telephone message circuits and, like the message circuits, connected by means of jack boxes to telephones used in train dispatching service. Extra way-station equipments, consisting of hand generators and extension bells, are installed to provide independent and local service between block offices. These circuits are so arranged that they can be connected through any block office as required.

Local circuits, where required between switching points, sidings, signal stations, etc., are provided and, like the message and block circuits, connect by means of jack boxes to telephones used in train and load dispatching service. Such switching and siding pole-box telephones are in addition to the pole-box telephones normally connecting direct to dispatching and message circuits.

Local circuits with loud-speaking telephones are provided at passenger and freight terminals, where it is advantageous for all parties connecting with a local circuit to receive instructions, or to hear conversations that may be carried on between any two telephones on the circuit. One of the important passenger stations is equipped with a public address telephone system for the announcing of trains. Loud speakers are located throughout the station, making it possible for an employee, in addition to other regular duties, to announce all trains, thereby eliminating train callers. Consideration is now being given to the installation of similar systems at other stations.

Teletype systems are in service at several of the larger passenger stations where the arrival time of trains and other train and general information is of interest to employees in various parts of the stations. This telegraph printer system produces a legible printed record and thus

eliminates the necessity for the continuous presence of an employee at the receiving end. Telegraph printer service is to be employed between the general offices at New Haven and all division points for general message service. This service will operate over the simplex channels of the communication circuits provided for the various branches of telephone service, as previously explained.

Communication in Electrified Territory

Cable was substituted for open wires in the electric zone at a time when extensive rebuilding was required, following a sleet storm. The decision to install cable was based upon the necessity for additional circuits and for the purpose of reducing inductive interference and providing sufficient clearance between the communication and high-voltage circuits to prevent a contact between the two in the event of line failures. In order to provide a predetermined physical clearance, 16 of the 75 miles of cable plant was installed underground, largely in short sections where clearances were small.

The 45-pair, paper-insulated, lead-encased cable is of special construction, having high insulation breakdown values; this feature also applies to lateral cables, terminal stubs, etc. In order to keep the induced potential below the operating value of the protectors used in the system, electrostatic drainage is employed on all through telephone circuits.

The development work in connection with loud-speaking telephones for the use of dispatchers was hastened at the time the inductive interference problem was being studied, with the understanding that, with the development work completed, the loud speakers would be applicable for the general use of dispatchers, as well as in electrified territory for the purpose of preventing acoustic shock, and the first installation on the line was made with temporary equipment during the development stage. Loud speakers are now used regularly by all dispatchers in the electric zone between New Haven and New York and for similar service throughout the system.

All long distance circuits through this cable are loaded, and cord circuit repeaters are used at New Haven for certain long distance connections between the cable circuits and open wire circuits running north and east of New Haven.

Facilities Under Consideration

Studies are under way in connection with the application of carrier telephony to operate over high-voltage circuits in the electric zone for communication between the load dispatchers' office and work trains handling construction and maintenance of the electric plant, and there is a possibility that this method of communication may be applied to other branches of service in this territory.

Telephone service is, in general, superior to Morse service for the various kinds of communication on railroads. The operation is faster and a greater amount of business can be handled with the same force to such an extent that dispatchers' districts have been lengthened and in some cases consolidated. From the standpoint of personnel, the telephone has produced beneficial results on account of the more personal contact between the dispatcher and those to whom he imparts instructions, and this applies throughout the organization. The telephone has made it possible for the dispatchers to communicate direct with train crews at sidings, as well as at stations when unattended, thereby materially speeding up train service and reducing operating costs. Telephone operation for all branches of railroad service is expected to make possible greater economy, flexibility and improved service.

Pensacola Welcomes the Frisco

ON June 28, two special trains, carrying nearly 300 business men, bankers and railway officers, arrived in Pensacola, Fla., over the St. Louis-San Francisco. The party consisted of citizens of St. Louis, Mo., Kansas City, Joplin, Springfield, Tulsa, Okla., Oklahoma City, Fort Smith, Ark., Wichita, Kan., Memphis, Tenn., Birmingham, Ala., and other cities served by the Frisco together with E. N. Brown, chairman of the board of directors, J. M. Kurn, president and J. R. Koontz, F. H. Hamilton and E. T. Miller, vice-presidents of the Frisco.

These were the first passenger trains to traverse the new line of the Frisco between Aberdeen, Miss., and Pensacola. A holiday was declared in the latter city and the welcoming ceremonies included a parade, a banquet, a regatta on Escambia Bay and flying exhibitions by officers of the naval air station at Pensacola.

President Kurn and Vice-Presidents Koontz and Hamilton participated in the flying exhibition, making an inspection of the bay and the port from the air by seaplane.

The parade was enlivened by the presence of soldiers from Fort Barrancas, sailors from the air stations and military and naval bands. Decorated floats representing local and out-of-town organizations competed for prizes and the entire city presented a gala air, with every shop window having a display appropriate to the occasion.

Several prominent citizens of Pensacola extended a cordial welcome to the Frisco and the touring party at a banquet held in the evening. Admiral Raby, in charge of the naval air station, and Colonel Singleton, commander at Fort Barrancas, spoke of the importance of the line from naval and military viewpoints. Colonel Singleton also pointed out the current fallacy of ascribing the high prices of products to railway rates, stating that his experience in trying to obtain food and other products in the interior of China and Alaska had taught him to appreciate the value of adequate and dependable transportation, and not merely to take it for granted, as many shippers are prone to do. Chairman Brown and President Kurn responded on behalf of the Frisco and announced the intention of the Frisco to develop the port of Pensacola to the fullest extent.

In the course of the trip to Pensacola and return, many other cities along the line staged welcoming ceremonies, ranging from barbecues to bathing beauty reviews. These cities included Amory, Miss., Aberdeen and Columbus; Aliceville, Ala., Linden, Boligee, Demopolis and Atmore.

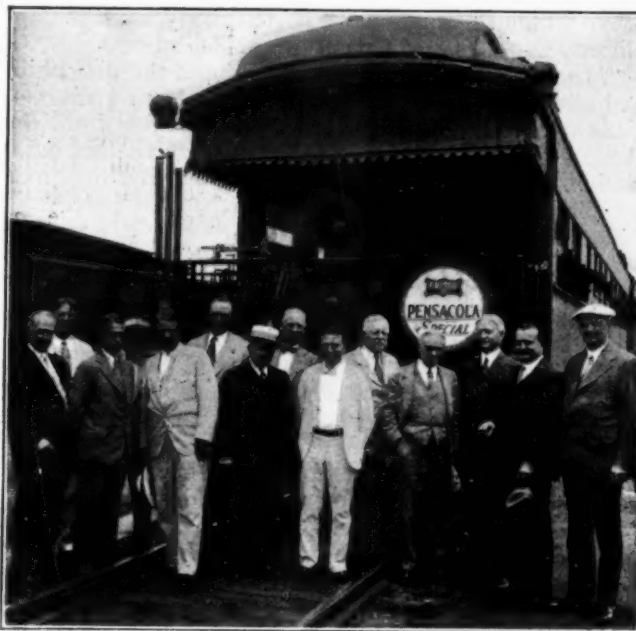
Possibilities of the New Line

The Frisco's outlet to the gulf consists, from Memphis, Tenn., to Aberdeen, Miss., of the main line between Memphis and Birmingham, Ala.; from Aberdeen to Kimbrough, Ala., of an entirely new line just completed, full details as to the construction of which will appear in an early issue of the *Railway Age*; and from Kimbrough to Pensacola, of the rehabilitated Muscle Shoals, Birmingham & Pensacola purchased by the Frisco in July, 1925. The new line traverses the Tombigbee river valley, a section which is rich in agricultural possibilities, largely undeveloped because of the lack of transportation facilities hitherto existing.

In addition to the local and through business to and from Pensacola, a number of new traffic routes are opened by means of connections with other railways, such as the entrance to Mobile effected by the con-

nections established with the Alabama, Tennessee & Northern at Aliceville, Ala., the Southern at Kimbrough, Ala., and the Louisville & Nashville at Atmore, Ala.

There are 265,681 people living in the nine counties traversed. The principal junction and terminal points



Frisco Officers and Shippers Enroute to Pensacola

are at Aberdeen, Miss., population 4,071, where connection is made with the Illinois Central and Mobile & Ohio; Columbus, Miss., 10,501, Columbus & Greenville, Mobile & Ohio and Southern; Aliceville, Ala., 944, Alabama, Tennessee & Northern, and Pensacola, Fla., 25,305, Louisville & Nashville.

Great Northern Pacific Unification Opposed

WASHINGTON, D. C.

NUMEROUS briefs taking various positions with reference to the application of the Great Northern Pacific to acquire control of the Great Northern, Northern Pacific and Spokane, Portland & Seattle railways have been filed with the Interstate Commerce Commission.

The Commission has assigned the case for oral argument before the entire commission on October 3 and 4.

Clara Hill Lindley and other intervening minority stockholders agree to the desirability of further unification of the northern lines but declare that to bring this about there is no necessity for the creation of the new company, the Great Northern Pacific. They recommend as an alternative plan the leasing of the properties of the Northern Pacific to the Great Northern with an exchange of Great Northern stock for Northern Pacific stock.

The railroad commissions of South Dakota and Wisconsin stress the argument that the proposed unification would operate to the disadvantage of the Chicago, Milwaukee, St. Paul & Pacific. The attorney general of Iowa objects on the ground that the plan would consolidate two large and strong, parallel and competing railroads. Outright opposition to the plan is also expressed in the briefs of the Iowa commission; the Wash-

ington commission, various chambers of commerce, the Chicago, Milwaukee, St. Paul & Pacific and the Minneapolis & St. Louis.

"Manifestly," says the Milwaukee brief, "one of the chief purposes of the application, if not its actuating motive, is to vest control of the Burlington in the new company. This result the commission is asked to approve without a single word of testimony from the applicants as to its effect upon the public interest.

"Much is said in the application about the difficulties and alleged injury which would result from a disassociation of either of the Northern companies from the Burlington. Nobody is seeking to dissolve this association. Under existing conditions the Burlington is complementary to each of the Northerns. Indeed, so far as the existing situation is concerned, it may well be that the present divided control of the Burlington between these two strongly competing railroads is one of the factors which has contributed to the balanced condition of things now obtaining in the territory affected. What the effect would be of some different grouping of railroads under which the Burlington would be disassociated from one Northern and left with the control of the other, is not an issue in this case. Nor may the applicants, if the application be treated as one for the control of the Burlington (which it should not be) justify the latter solely upon the ground that their own union would be in the public interest, which is all they have endeavored to show. They must go further, and show that the substitution of a complete control of the Burlington by the merged companies for a control divided, as now, between two competing companies, would be in the public interest."

Eight short line railroads connecting with one or more of the lines of the proposed system assert that while they do not wish to be understood as being opposed to the proposed unification it will not be in the public interest to permit it without proper provision for their incorporation into the system. The brief was filed on behalf of the Electric Short Line Terminal Company, the Minnesota Western, the Minneapolis, Northfield & Southern, the Minneapolis & Rainy River, the Waterville, the Wyoming, the La Crosse & Southeastern and the Leavenworth & Topeka. The latter three connect with the Burlington but the brief contends that the Burlington is "so far involved in the proposed unification as to make necessary at this time consideration of the incorporation in the proposed system of the lesser lines connecting with the Burlington." The Waterville railway, on the other hand, wishes to remain independent but to obtain a guaranty that it will not be interfered with in the continued use of its rails and ties, which are owned by the Great Northern, and that the latter will maintain its branch line with which the Waterville connects.

The brief says that the applicants have given some, but not sufficient, consideration to the short and weak railroads connecting with the Great Northern and Northern Pacific, and to those short lines connecting with the Burlington that intervened in these proceedings, and that the plan "appears to be free from the financial features which have been criticized by the commission in other cases, since it involves no underwriting or bankers' commissions", but the brief asks that each of the interveners, except the Waterville, be incorporated into the proposed system by the acquisition by the applicants of their property, either by purchase of stock, purchase of physical assets, or by lease, upon fair and reasonable terms. The Waterville, they say, should be incorporated unless it shall receive the guar-

anty asked. The commission is asked to hold the record open for such length of time as it may direct to afford the applicants an opportunity to negotiate and agree with each of the interveners upon terms for their acquisition, with the further proviso that if they cannot mutually agree that the terms may be fixed by arbitration or by the commission.

Lackawanna Ends Year With Lowest Supply Ratio

IN the *Railway Age* of June 16, under the title "Railway Material Stocks Lower in 1927," pages 1399 to 1401, statistics were published purporting to give the amount of unapplied materials and supplies carried in stock by Class I railroads of the United States at the close of 1927, together with the increases or decreases from the previous year and the percentage which these stocks bore to the corresponding annual operating expenses. Through an unintentional oversight, the corresponding statistics for the Delaware, Lackawanna & Western were not included as in previous years. These statistics have just been completed and are presented as follows:

Dec. 31, 1927	On hand Dec. 31, 1926	Decrease	Per cent of operating expenses	
			1927	1926
\$3,131,789	\$3,832,623	\$700,834	5.2	6.1

As in the case of the figures published in the aforementioned article, the inventories are those published by the carrier in its annual reports to the Interstate Commerce Commission and represent the total value of materials and supplies on hand, including rail, ties, fuel and all other materials as determined by the railroad in accordance with its interpretation of the Interstate Commerce Commission's accounting requirements. The ratios are obtained by dividing these values by the total annual operating expenses.

The figures show a reduction of \$700,834, or 18 per cent in the inventory of 1927 compared with 1926, and a ratio to operating expenses of 5.2 per cent, as compared with 6.1 per cent for the previous year. While as explained in the issue of June 16, such a ratio of material on hand to operating expenses is not of itself necessarily a measure of the efficiency with which a carrier conducts its supply operations, it is interesting to note that the reduced inventory for 1927, gave the Lackawanna a lower ratio of unapplied materials to operating expenses than other Class I roads, including the Chesapeake & Ohio, whose ratio of 5.6 per cent was the lowest given in the previous article. The operating expenses of the Delaware, Lackawanna & Western, which is about 1,000 miles long, were \$60,183,060 for 1927, compared with \$62,377,489 for 1926.

With the Delaware, Lackawanna & Western figures included, the *Railway Age* summary of unapplied material for Class I roads of the United States for 1927, is increased to \$521,715,283, as compared with \$549,585,606 for the same roads at the close of 1926, representing a total reduction of \$27,870,323. We are indebted for the Lackawanna statistics to I. H. Lance, general storekeeper.

THE RAILROAD YARDMASTERS OF AMERICA, meeting at St. Louis, Mo., on June 6, voted to ask the next session of Congress for legislation which would give yardmasters an eight-hour day with a six-day week. The organization asserted that about 60 per cent of the yardmasters in the United States now work a 12-hour day with two days off duty each month.

Howard Elliott Dies

Chairman of Northern Pacific and former head of New Haven gave lifelong active service to railroads and civic enterprises

HOWARD ELLIOTT, chairman of the Northern Pacific with headquarters at New York and formerly president of that company and of the New York, New Haven & Hartford, died at Dennis, Mass., on July 8 of a heart attack. Mr. Elliott was in his sixty-eighth year, having been born on December 6, 1860, at New York. He was educated at Lawrence Scientific School, Harvard University, being graduated therefrom in 1881 with the degree of civil engineer.

During the summer of 1880 he had his first experience in railroading with the Chicago, Burlington & Quincy as a rodman for a short period in northwestern Missouri. After his graduation from Harvard he worked three months in Maryland making surveys for the Mount Savage Fire Brick Company. In October, 1881, he entered the service of the Chicago, Burlington & Quincy as a clerk at Burlington, Iowa, where he remained until January 1, 1882, when he was transferred to Keokuk, Iowa. On November 15, 1882, he was appointed assistant auditor and assistant treasurer of two subordinate roads of the company. On January 1, 1887, he became general freight and passenger agent of the same roads, where he remained until May, 1891, when he was appointed general freight agent of the Missouri lines of the Burlington system, including the St. Louis, Keokuk & Northwestern; the Chicago, Burlington & Kansas City; the Hannibal & St. Joseph and the Kansas City, St. Joseph & Council Bluffs—in all about 1,000 miles of road in northern Missouri and southern Iowa, with headquarters in St. Louis. In January, 1896, he was appointed general manager of the same properties with offices in St. Louis and St. Joseph, being also a director of a number of subsidiary companies. In 1900 he declined the position of general manager of the main part of the Chicago, Burlington & Quincy, with headquarters in Chicago, and elected to remain in St. Louis. In May, 1901, he was elected second vice-president of the Burlington system in charge of maintenance, operation and construction of all lines, with headquarters at Chicago.

While a resident of St. Louis he was a member of the executive committee of the Louisiana Purchase Exposition and prominent in other civic affairs. On October 21, 1903, he was elected president and a director of the Northern Pacific with headquarters at St. Paul, Minn.

The period of Mr. Elliott's administration was one of great development in the Northwest, from a railroad standpoint as well as generally. On the Northern Pacific main lines, grades and curves were improved, heavier rail and bridges installed; sidings, double track and terminals added; better shops, engine terminals and equipment provided. Mr. Elliott supervised and directed the construction of 377 miles of road from Spokane, Wash., to Portland, Ore., which included 230 miles of line along the north bank of the Columbia river and the building of bridges over this river and the Willamette, two of the largest in the United States.

During his administration the Northern Securities

case was decided by the Supreme Court on March 14, 1904, by which the control of the Northern Pacific, the Great Northern and the Burlington by the Northern Securities Company was declared illegal and the holding corporation dissolved. In order to inform the public of the issues involved and the company's viewpoint Mr. Elliott delivered during 1905 to 1913 many addresses throughout the Northwest which were printed and widely circulated. He at all times took a keen interest in movements that helped to encourage better methods of agriculture, particularly in the Northwest.

During 1913 the railroad situation in New England was in a precarious condition due partially to prejudice and hostility toward the policy of the New York, New Haven & Hartford, arising from its attempt to consolidate transportation in New England. Because of this feeling the service of the road to the public

was affected and the securities of the New Haven and other New England roads widely held by banks and small investors depreciated greatly.

Mr. Elliott was called to the presidency of the New York, New Haven & Hartford on September 1, 1913, with headquarters in Boston, Mass., and shortly thereafter a special committee consisting of Mr. Elliott, Moorfield Storey and Walker D. Hines, special counsel, began negotiations which resulted in the placing of some of the New Haven properties in the hands of trustees appointed by the Department of Justice, and an agreement was arrived at to dispose of these and other properties, which was extended from time to time because of the unsettled financial conditions during the war. Aside from his duties as president of the road, Mr. Elliott delivered during 1913-17 a series of addresses



Howard Elliott

on the New England railroad situation. During his four years of administration he supervised the preparation of a comprehensive scheme of improvements in roadbed, terminals, rolling stock and operation. He was able, through his efforts, to lay the groundwork for restoring public confidence in the New Haven.

Because of the unusual work and severe physical and nervous strain from 1913 to 1917, necessary to bring about the rehabilitation of the New Haven, Mr. Elliott was threatened with a nervous breakdown and under advice of physicians resigned on May 1, 1917, although he continued to serve in an advisory capacity as a member of the board of directors and executive committee.

Later in 1917 he again took up his railroad activities in the Northwest, becoming chairman of the Northern Pacific, succeeding the late William P. Clough, with headquarters in New York, and was actively identified with that railroad to the time of his death, and with the Chicago, Burlington & Quincy, of which the Northern Pacific is one-half owner.

From April 15, 1917, to December 28, 1917, when the government assumed the control of the railroads, Mr. Elliott was a member of the Railroads' War Board. When the United States Railroad Administration was organized, Mr. Elliott served as chairman of the committee which inaugurated the "zoning" system for the country to shorten and expedite the haul of coal. His work in part was that of providing an adequate fuel supply for New England and the Northwest.

Averted Crisis on the New Haven

In April, 1918, he succeeded in averting a crisis for the New Haven. At the time its notes (over \$40,000,000) fell due. These notes represented in part the floating debt of the company, the accumulation of years, and it had been expected that a permanent financial plan would be developed which was impossible because of war conditions. These notes could not be extended nor paid off, which threatened a receivership. Mr. Elliott appeared before the United States Railroad Administration on behalf of the company, and secured funds to pay the notes, and induced the government to take the note of the New Haven for the amount of the debt, secured by collateral.

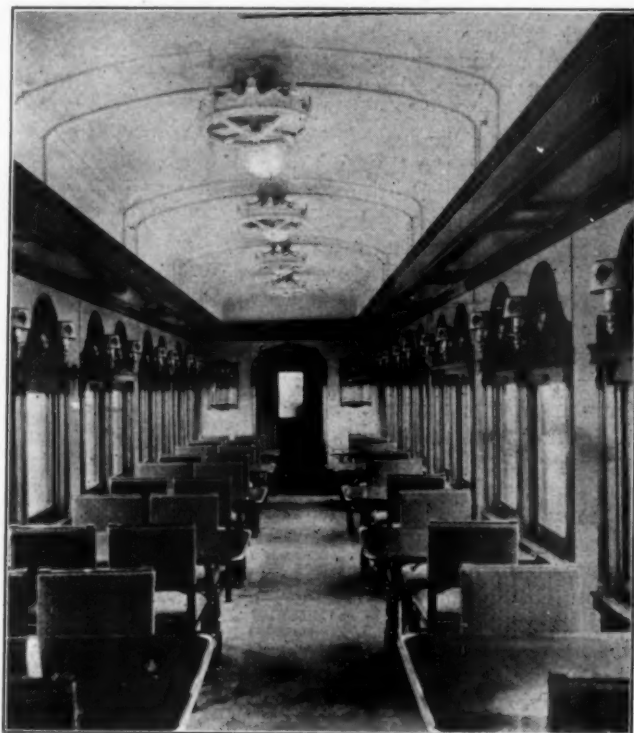
During 1918-20, with other railway executives, he presented to the public and to Congress the need of remedial legislation for the transportation system of the United States. February 28, 1920, President Wilson signed the Transportation Act and management by the owners of the roads was resumed on March 1. It then became necessary for the railway companies to obtain additional revenue and Mr. Elliott was appointed chairman of a committee of railway executives to present the railroads' case to the Interstate Commerce Commission. Mr. Elliott, at the time of his death, was a director in the following companies; Chicago, Burlington & Quincy; Colorado & Southern; Northern Pacific; New York, New Haven & Hartford; New York, Westchester & Boston; New York Connecting; New England Steamship; New York & Stamford; Westchester Street Railway; Northwestern Improvement Company; Northern Express Company; Northern Pacific Express Company; St. Paul & Duluth; Ontario, Carbondale & Scranton; Port Jervis, Monticello & Summitville; Ellenville & Kingston; Absaroka Oil Development Company; Guaranty Trust Company of New York; National Surety Company, Western Union Telegraph Company; Fulton Trust Company; a member of the executive committee of the Association of Railway Executives; a director of the American Railway Association; and was for two

years a director of the Chamber of Commerce of the United States.

In addition to his active service in the transportation field, Mr. Elliott has always been closely identified with a wide variety of philanthropic, civic, and educational organizations, moreover serving as president of the Board of Overseers of Harvard University and as a life member of the corporation of the Massachusetts Institute of Technology.

Rock Island Diner Highly Attractive

TO provide additional and better dining car service on its through trains between Chicago and the Pacific Coast, the Chicago, Rock Island & Pacific recently placed in service five additional diners, built by the Pullman Car & Manufacturing Corp., and notable not only for completely modern equipment but



View Showing Clerestory Ceiling Effect in Attractively Designed and Decorated Rock Island Diner

for the beauty and good taste of the interior finish and decorative features.

One of the new dining cars is shown in the illustrations. It is 80 ft. 10 in. long over the end posts and has a seating capacity of 36. The car is provided with an oval or turtle-back roof and a ceiling built in on each side to give the clear-story effect illustrated. This special structural feature is fully utilized in obtaining a novel artistic effect. The upper deck of the ceiling is made wider than common and is of the curved type. Arched beams are so disposed as to relieve the simple treatment and still preserve almost unbroken the expanse of the deck throughout the length of the dining room. The ensemble presents a roomy and airy effect much to be desired in a room of this kind. The treatment of the main lighting fixtures and ceiling fans, which are painted in colors to match the ceiling, is in strict ac-

cord with this motif. The treatment of the decorative features and furnishings is unusually effective. Light-colored painted walls contrast strongly with the natural walnut finish of the arched windows and doorways, of a modified Spanish architecture.

The main lobby and corridors, where the service demands a more utilitarian than ornamental effect, are finished throughout in walnut wood in a motif that harmonizes pleasingly with that of the main room. The corridor adjoining the kitchen is finished in steel, grained to match the walnut wood. The transition from the natural beauty of the walnut, however, is so well executed that it is apparent only to close observers.

Six special ceiling lamps and five electric ceiling fans, furnished by the Safety Car Heating & Lighting Company, add much to the attractiveness of the main dining room, and furnish ample general illumination

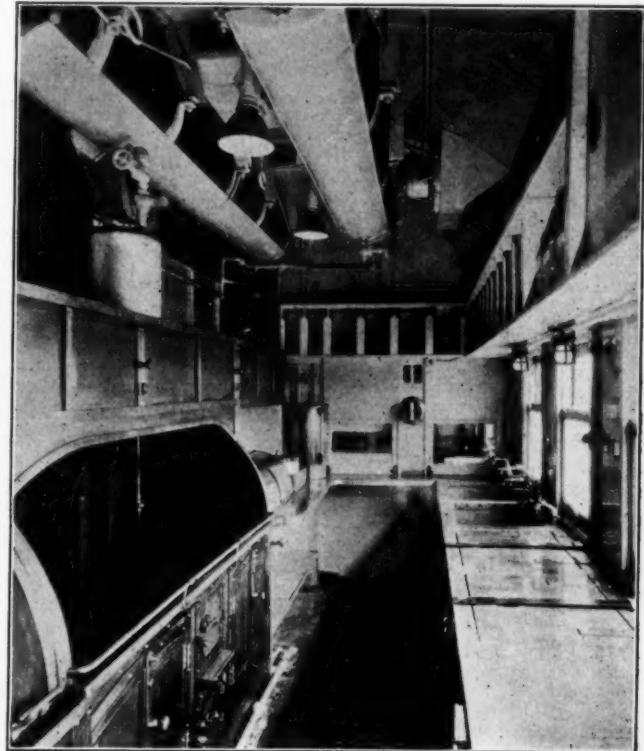
the lobby, window shades and floor carpeting and tiling, is of especially selected materials, designed in keeping with the general decorative treatment. The tables and chairs are both of walnut, the latter being upholstered and covered on the backs and seats with figured mohair. The dining room carpet, harmonizing in color



One Corner of Dining Room—The Pantry Entrance Is in Back Ground

and change of air. The distribution of lighting fixtures at the dining tables is unusual and consists of individual candle brackets with ornamented translucent shades designed especially to harmonize with the architectural scheme of the room.

The furniture, including the ornamental cabinet in



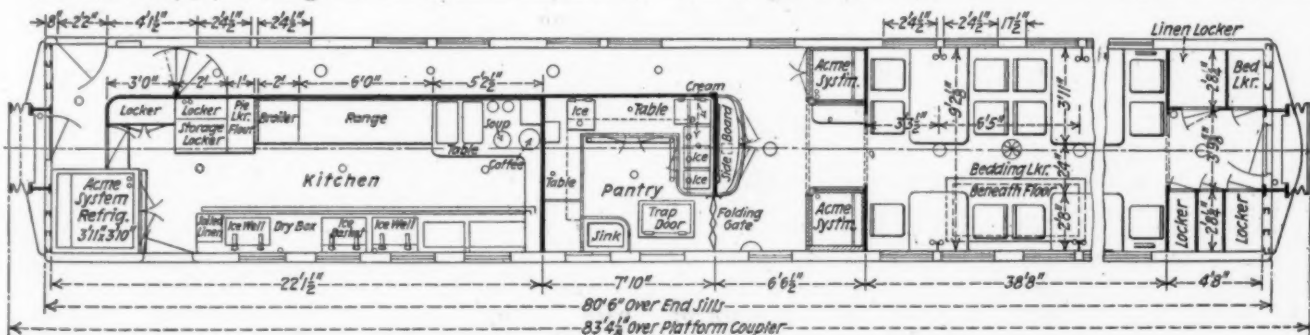
Thoroughly Modern, Well-equipped and Conveniently Arranged Kitchen

with the other interior furnishings, is provided with an aisle strip portion which is sewed to form the center of the carpet.

Kitchen and Pantry

Referring to the floor plan, it will be noted that the kitchen and pantry occupy a length of about 22 ft. and 8 ft. respectively. The kitchen equipment consists of a refrigerator provided with the Acme ventilation system and arranged to be iced from the roof; a Stearns steel coal-burning range, 6 ft. long, with broiler, 2 ft. long; steam table; warming oven over the broiler, range and steam table; storage lockers; coffee urn; suitable sinks; ice wells and ice basket; dry box; soiled linen box; scrap chute, etc.

The Pullman standard single-tank air-pressure water system is supplied, with a 28-in. by 108-in. tank. Hot water, cold water and filtered water pipes are painted



Floor Plan of the New Chicago, Rock Island & Pacific Dining Car

distinctive colors for easy tracing. The hot water tank in the kitchen is secured by ample hangers from the carlines, drip pans being provided under the tanks.

The kitchen, finished in white, is well lighted, and provided with ample ventilation by means of two Globe ventilators with 9-in. exhaust fans. The floors in both the kitchen and the pantry consist of wood, covered with copper (.042 in. thick) which extends up 5 in. on all walls or partitions and is secured to the floor in the kitchen with round-head brass screws and in the pantry with flat-head brass screws. A wood grating covers the pantry floor.

The pantry equipment includes, among other details, bar and fruit lockers with Acme ventilation system and arranged for icing through the roof; linen lockers; sideboard; refrigerator with locker space above; icebox with compartments for cream, butter, etc.; work table, covered with white metal and designed with coffee urn drain; sink with scrap can beneath; folding wash basin; speaking tube in the partition between the pantry and the kitchen, etc.

Vapor thermostatic temperature control is provided throughout the car, thus contributing substantially to the comfort of patrons. In fact, the entire design and equipment of the car have been developed with a view to giving a service and providing an atmosphere comparable with those in the finest hotel dining rooms.

Short Lines Exchange Efficiency Ideas

THE American Short Line Railroad Association has instituted a plan for bringing about an exchange of ideas among its members as to various methods for improving operating efficiency and of meeting the miscellaneous problems which are common to many short lines. Bird M. Robinson, president of the association, recently addressed a letter to the members proposing a plan for an exchange of ideas of this kind with the association as a clearing house and asking for suggestions. The first results have just been distributed in the form of a bulletin entitled "Operating Efficiency Ideas" containing contributions from eight different short line officers.

"The trunk line railroads have been engaged for several years," Mr. Robinson says in Bulletin No. 1, "in a co-operative effort to increase operating efficiency, to improve their service, to get more business, to meet the competition of the motor bus and truck, to make more money and to save more money. They have accomplished much, and a large part of it is due to the free exchange of their thoughts upon the problems confronting them and the results of their experience in meeting those problems.

"Our letter No. 745 of May 24 was for the purpose of sounding out the sentiment of members upon the question of engaging in a similar co-operative effort. The response has not been large, but those who have responded are sincerely interested. This bulletin is for the purpose of putting the ideas received into circulation, and to ask for more.

"A number of members wrote that they were deeply interested in the establishment of such a service, but at present have nothing to offer. We cannot believe they are entirely without ingenuity, and we ask them to try again. With commendable modesty the general superintendent of one member road said he had initiated many

money-saving plans in the year he has managed his present road, but feared operating conditions would make them impracticable on other roads. We have asked him for an account of his devices as we are confident his fears are groundless.

"If members do not at present have ideas they feel like putting into circulation, perhaps they have problems for which someone else has a solution; as suggested by K. B. Holeman, general manager of the Santa Maria Valley Railroad Company, whose slogan is *We Sell Transportation Plus Service.*"

Maurice Dailey, operating vice president of the Chicago & Illinois Midland, furnished a letter dealing with ways of utilizing old materials, such as track spikes, car bolts, wooden car material and ties, the use of tie plates, locomotive tire changing, reversing switch points, etc.

Mr. Dailey says: "I have been on roads where we had to economize in every way to save pennies and not dollars and by so doing you will soon get so stingy that you will refuse to buy 'clip' (memorandum paper) in the office but use old envelopes and advertising matter that comes in."

The president of another member line, who prefers that his name and the name of his road be not given publicity, tells how he managed to reduce expenses materially and still give the service, by handling mail and express by using a Ford truck chassis, equipping it with two flanged wheels on the rear axle, a four-wheel truck in front and a wagon bed with bows and tarpaulin covering. This motor car handles mail and express, making the trip in about three hours with crew that was regularly employed in the office but able to spare time for the run.

S. R. Adams, general manager of the Townsville Railroad, tells how his 10½-mile road effected a saving by putting a combination man in charge of both the section and locomotive or train forces, cross-working them when necessary.

H. S. Stebbins, vice-president of the Midland Continental, is greatly pleased with a weed burning machine recently purchased and recommends it very highly. The Midland Continental has about 75 miles of line and sidetrack. His letter said in part:

"The last two years the greatest source of economy for the money invested has been the Fairmont Weed Burner, made by the Fairmont Railway Motors, Fairmont, Minn. This machine reduced our cost of clearing the track of weeds, grass, etc., from \$12.00 to \$14.00 a mile to an average of \$2.24 a mile, and burns 12 ft. instead of 9 ft. In other words, we paid for the machine by the saving the first year, and it is good for twenty years more, we should judge."

Officers of two member roads suggest for discussion the problem of how to meet motor competition.

R. A. Knox, general superintendent of the Coudersport & Port Allegany, says in part: "The greatest trouble that we seem to be experiencing is in the proper method of keeping our books for the I. C. C. requirements. After our reports are filed at the end of the year it has been our experience that dozens of letters have to be written before these reports are finally approved. It would seem to me that if a bureau could be established and competent bookkeepers or examiners sent out from time to time during the year, we might be saved considerable money in the way tax reports are made out and also the labor that it would save us in getting additional data for delayed reports. As you doubtless know, short lines cannot afford to carry high priced accountants on their pay rolls and usually the men that are required to do this work are not very familiar with all the little details."

Pennsylvania Squeezes Waste Out Of Supply Motions

Putting stores and purchase routine in central bureau with machine methods cuts work 60 percent

By W. R. Knauer

Supervisor of Stores Catalog,
Pennsylvania System



In the Plate Department—Note Addressographs at Left

A REDUCTION of approximately 60 per cent in the clerical effort required in ordering material and a reduction of 20 per cent in letter-writing, filing and mailing forces, have resulted from the operation of a service bureau in the Pennsylvania purchasing and stores department where clerical work has been centralized and reduced to machine methods. In it the graphotype, addressograph, ditto machine, the multi-graph and lithograph have pushed the typewriter into the background and office practices, particularly in ordering and purchasing material, have been developed which have virtually eliminated the manual repetition of detail. This bureau now comprises seven units, a research division, an addressograph plate division, a printing division, a manifold division, a typist division, a file division and a mail division. With the exception of the printing division, it is situated on the fourth floor of the Pennsylvania's new office building in Philadelphia with the central offices of the purchasing and stores department of which it is a part. The forces of the purchasing agent occupy one end of the floor, those of the general storekeeper and the chief material supervisor, the other end, while the service bureau lies between, where it is convenient to both.

Stores Catalog Developed

The bureau was started in 1920, with the creation of a store's catalog. The latter contains all standard items of material commonly used on the system and is furnished to all storekeepers for their guidance and control in ordering material and reporting stocks on hand. Material not listed cannot be secured or kept in the absence of special authority. Standard descriptions giving complete but condensed information essential to ordering, including references to specifications and plans and the ordering unit, are provided for each item and these are identified by reference numbers for use in orders and in correspondence to save writing and re-writing

the full descriptions. In the case of all castings the pattern number is the reference number, while in other cases the manufacturer's piece number is used, if practicable; otherwise a reference number is assigned.

The research department is maintained to keep the catalog. It consists of men familiar with various shop and road practices as well as the material used on different types of equipment and tools, and who are also capable of interpreting plans and specifications furnished by the engineering and test departments to govern the purchase of material. These men originate the text of each item, assign reference numbers and make revisions and also answer all correspondence in connection with the catalog work, make investigations preparatory to adopting recommended additions and prepare and distribute the catalog pages and revisions made.

There were 249,279 pages and 1,415,142 addition and correction slips issued in 1927.

Install Addressograph Machines

The first attempt toward the establishment of the catalog was by means of mimeographed lists of material but it was quickly discovered that this scheme was not adequate because of the possibility of error in transcribing and because of difficulties in correcting items already catalogued. The additions and changes during 1927 amounted to 28,820. To overcome these objections it was decided to employ the addressograph system, using a metallic plate on which the letters and figures comprising the description of an item are formed by stamping in a graphotype machine, after which the description can be reproduced on paper by inserting the plate in the addressograph machine. Under this system a complete file of master plates is maintained, one for every item in the catalog for reproducing all descriptions and new catalog pages.

The establishment of this file, comprising 61,000

The typist, file and mail divisions of the bureau have been only recently established as the result of consolidating similar bureaus previously maintained in both purchasing and stores departments. The typist division is equipped to handle all the typing for the entire floor from Dictaphone and Ediphone cylinders. It also does statement work, stencil writing for mimeograph operation, and inserts quantities and order numbers on the general storekeeper's requisitions on the purchasing agent and on material transfer orders. The mail division handles both U. S. and railroad service mail, inbound and outbound, amounting to approximately 162,000 pieces per month. Combining the files of the purchases and stores departments has resulted in the handling of one file instead of four, and the establishment of the typist, file and mail bureaus has effected a total saving of 21 per cent in force.

Improved System of Ordering

One of the most interesting developments in connection with the bureau is the preparation of general storekeeper's requisitions, material transfer orders, and purchasing agent's orders. The use of the master addressograph plates, covering the description of standard items of material, together with those containing the names of consignees and vendors, has eliminated all typing with the exception of inserting the order number and quantity, and all the physical work of preparing and mailing orders is now done in the service bureau.

The general storekeeper advises the service bureau the quantity to be ordered by means of a printed form known as a Work Sheet, on which the reference number of the article to be ordered or transferred is marked in pencil. With this information the plate department makes the impression on a requisition form as well as on the work sheet, and forwards it to the typist bureau, where the quantity and order number are inserted on

the preparation of all necessary copies, consisting of the purchasing agent's order on the vendor, the commitment copy, the traffic department's copy, the inspection department's copy, and a copy for the consignee. After checking, all copies are sent to the mail bureau for mailing to their respective destinations, and the original requisition is returned to the purchasing agent and becomes his record of the order placed. All impressions and notations appearing on the requisition form, except the signatures, are made with duplicating ink.



In. the Typist and Mailing Bureau

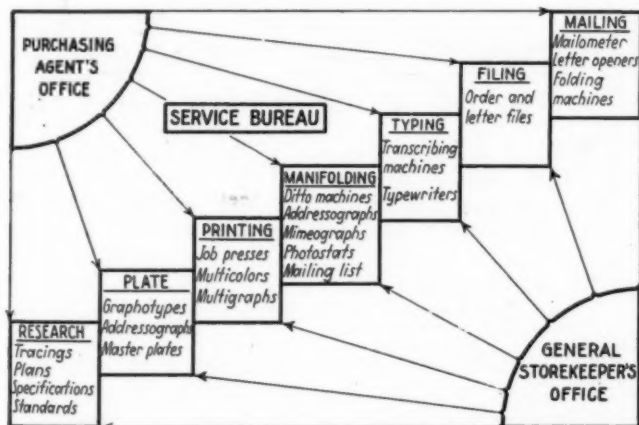
The foregoing covers what is known as a single item purchasing agent's order. Where it is found that more than one item for the same destination is being purchased from the same vendor, the purchasing agent assembles such requisitions before delivery to the service bureau, where, in manifolding, as many as five general storekeeper's requisitions may be consolidated on one purchasing agent's order. This method has greatly reduced the number of purchasing agent's orders.

Requisitions for materials not included in the standard catalog, are prepared by the consignee, using copying ink, and are also manifolded in the service bureau in the same manner as those originating from addressograph plates.

Cut Clerical Work

When the general storekeeper indicates on work sheets that a portion of the material required can be transferred from existing stocks, a material transfer order is prepared, by means of an addressograph plate impression, at the same time that the general storekeeper's requisition on the purchasing agent is prepared. No manifolding operation is necessary on the transfer order, as it is a carbon form, and sufficient copies can be made by both addressograph and typewriter impressions. The purchasing agent is not involved in material transfer orders, and the operation is considerably shortened.

By this method of handling requisitions and material transfer orders, an approximate saving of 60 per cent in clerical effort with an increased production of over 100 per cent has been effected. This, coupled with the ability to mail immediately after the machine production has been completed, places the orders in the hands of the vendors much more quickly than formerly. A fair monthly average of the number of general storekeeper's requisitions and material transfer orders prepared is 46,000.



The Organization Chart of the Service Bureau

the requisition form. The manifold department then adds the name of the consignee by means of addressograph plate impression.

No More Typewritten Orders

After checking, the requisition form and work sheet are returned to the general storekeeper for approval. The work sheet is retained by the general storekeeper as his file, and the requisition form is passed to the purchasing agent for signature and designation of vendor. It is then returned to the service bureau where the vendor's name is added by means of the addressograph plate. The requisition form, now containing all necessary information, is passed to the Ditto machines for

Barge Canal Freight Costs N. Y. Taxpayers \$3.50 a Ton

IT cost the taxpayers of the State of New York more than \$3.50 a ton for all the freight floated on the New York State Barge Canal in 1927, regardless of the length of the haul, according to E. E. Loomis, president of the Lehigh Valley and chairman, Eastern Railways' Committee on Public Relations. Mr. Loomis' statement was issued following a letter which he addressed to John Dowd, president, the Maritime Association of the Port of New York, challenging its recent assertion that Barge Canal charges are cheaper than railroad charges. Mr. Loomis' statement follows:

"In order to build the Barge Canal, the state sold bonds and the interest on these bonds must be met. These interest charges amounted to more than \$6,100,000 in 1927. Furthermore, the canal must be kept in working order, and this, in the form of operating expenses and maintenance, took over \$3,500,000 from the state treasury. When improvements and betterments and miscellaneous expenses of last year are added the total was about \$10,500,000. Receipts of some \$780,000 from various sources of income in connection with the canal left a sum in the neighborhood of \$9,700,000 which must be paid by the taxpayers of the state.

"In other words, the 2,580,000 tons which approximated all the freight floated on the canal during the 1927 season, cost these taxpayers more than \$3.50 a ton, regardless of the length of haul. This is the figure which must constantly be borne in mind in considering the canal question. It would be the one which private operators would have to meet if the canal were other than a state property and its books were kept on a business basis. This figure helps to keep up the tax rate which members of the Maritime Association and all other New York citizens must pay, whether or not they use the canal, and demonstrates conclusively that it would have been cheaper for the taxpayers if all the canal's boasted traffic had been put on railroad cars and the state had paid the freight bill. Incidentally the railroads pay into the New York state treasury more than \$20,000,000 a year, of which the canal takes out between eight and ten millions that it may be kept open for those who desire to use it.

"There are many reasons why the canal is not a success. Its friends point them out regularly. For five months in the year it is worse than useless because of ice. Permanent bridges restrict the size of vessels using it as does the depth of the water. To correct these shortcomings would entail the expenditure of millions of dollars additional of the taxpayers' money for the benefit of the canal operators."

Referring to the allegation that the canal saves the people of New York and adjoining states 50 million dollars per year in depressed freight rates, Mr. Loomis held that the contention has never been proved. He quoted the "succinct way in which Colonel Frederick Stuart Greene, superintendent of public works of the state of New York, disposed of this allegation in a special report made to Governor Smith, in February, 1926:

"The old Erie Canal," said Colonel Greene, "undoubtedly served to depress rail rates; this, however, was before the existence of the two rate-regulating bodies; the Interstate Commerce Commission and the Public Service Commission. Having these regulatory bodies, the questions naturally arise:

"1. Would these authorities have allowed rail rates to be increased \$50,000,000 a year, if the canal were not built?

"2. Are states, lacking canals, overcharged by the railroads \$50,000,000 a year, or in proportion, according to the amount of freight carried?

"3. Is not a club, costing \$10,500,000 a year, an expensive weapon to hold over the heads of the railroads?"

Examining the attempt of the Maritime Association to prove that the average movement of freight on the Barge Canal is faster than that by rail, Mr. Loomis said that in order to do this the Association quoted figures compiled monthly by the Bureau of Railway Economics, showing that the average daily freight-car movement on the railroads of this country in April was 29.9 miles, the highest April on record.

"But surely the Maritime Association," Mr. Loomis explained, "must have known or could have ascertained by inquiring, that this figure takes into consideration all freight cars in service including cars in transit, cars in process of being loaded and unloaded, cars undergoing or awaiting repairs, and also cars on sidetracks for which no load is immediately available. This explanation is included in every report issued by the Bureau of Railway Economics on average daily car movement.

"Perishable shippers of New York State know perfectly well that they are now getting second-morning delivery from Buffalo to New York. On general freight the railroads are supplying third-morning delivery. Canal service from Buffalo to New York cannot even approximate this, while the advantages the railroads offer their patrons through flexibility of service make any comparison of the two methods of transportation unnecessary."

Computer for Determining the Fuel Value of Coal

THE fuel value computer, shown in the illustration, was recently placed on the market by the Coal Specialties Company, 50 Church street, New York. It was originally developed by fuel engineers of the E. I. du Pont de Nemours & Co., to enable them quickly to determine and compare the fuel values of coals as offered by the seller, based on analyses submitted.

The fuel value computer is constructed somewhat like a circular slide rule with four scales as follows:

- A—Delivered fuel cost—Dollars per net ton of 2,000 lb. as received.
- B—Per cent ash in coal, as received.
- C—B.t.u. per pound of coal, as received.
- D—Fuel cost in cents per million recoverable B.t.u.

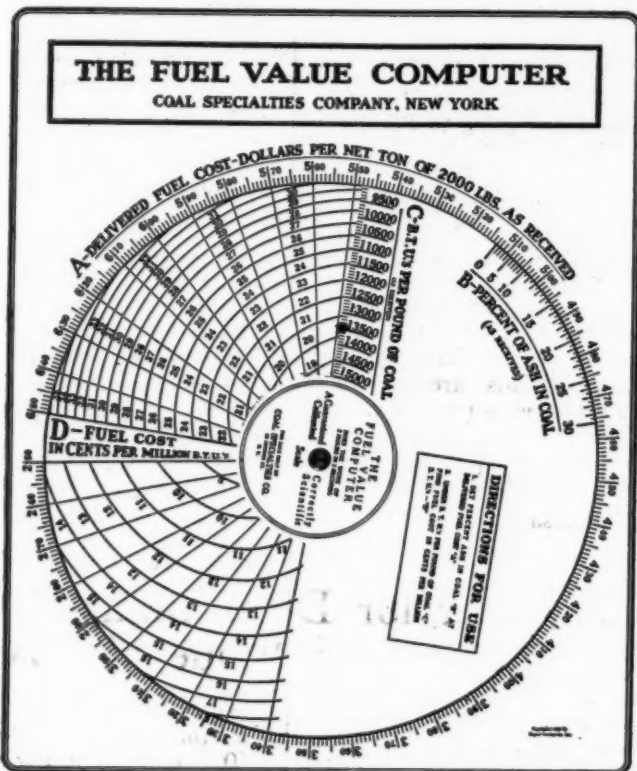
The mechanical operation of the computer is as follows: First, Set per cent of ash in coal *B* at delivered fuel cost *A*, and second under B.t.u. per pound of coal *C*, find the fuel cost in cents per million B.t.u. *D*.

This operation is obtained with one movement of the movable rider and the result is found immediately. For example, if one wishes to determine the fuel cost per million actual B.t.u. in the coal, not taking into account the effect of the ash on their recovery, the edge of the *C* scale is set at the delivered fuel cost on the *A* scale, and by reading on the *D* scale at the proper B.t.u. content on the *C* scale, the result is secured. This is a calculation which may be checked arithmetically.

If a certain seller offers a coal *V* at a price of \$5.23 per net ton, delivered, and another seller offers a coal *W* of somewhat lower grade, which; knowing all the variable factors, with the exception of *D*, for coal *W*, what will that amount to? Using the fuel value computer:

	Coal V	Coal W
Scale A		Required
1—Current price, delivered at plant, net ton..	\$5.23	
2—Moisture, as received, per cent.....	1.00	.50
3—Volatile matter, per cent.....	30.00	30.35
4—Fixed carbon, per cent.....	60.00	54.65
Scale B		
5—Ash, per cent.....	9.00	14.50
Total, per cent.....	100.00	100.00
Scale C		
6—Sulphur, per cent.....	1.25	2.86
7—B.t.u., as received.....	13,700	13,200
8—Fusion point of ash, deg. F.....	2,750	2,560
Scale D		
9—Fuel cost in cents per million B.t.u.....	20.7	20.7

Using the fuel value computer according to instructions the purchaser finds that *D* for coal *V* is 20.7 cents



A Computer for Quickly Determining and Comparing Fuel Values of Coals

and since the two coals are to be compared on a basis of equal values per million recoverable B.t.u., *D* for both coals will, of course, be the same.

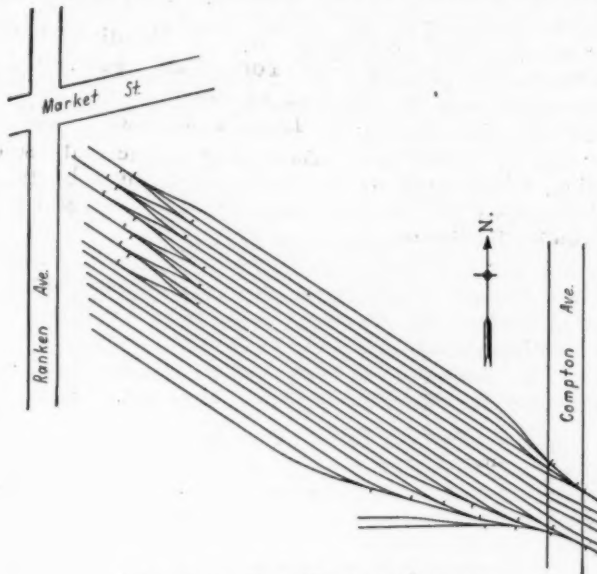
Therefore, in order to determine the value of *A* for coal *W*, place a pencil or pointer at the value of *C* for coal *W*; namely, 13,200 and turn the rider slowly to the right until that point coincides with 20.7 on the *D* scale; then at 14.5 on the *B* scale he will find \$4.92 on the *A* scale, which is the required information.

So, for these two coals, the difference in value is approximately 32 cents per net ton, provided, of course, that the conditions as to primary selection, type, size, and ash characteristics, have been met.

"AGRICULTURAL LONG ISLAND" is the title of a beautifully illustrated pamphlet of 16 pages, which has been issued by the Long Island Railroad to call attention to the varied opportunities in the territory adjacent to the company's lines. This land, says the circular, is near to the largest market in the world. In the interior of Long Island there remains a total of over 100,000 acres of virgin soil, still awaiting the plow.

Novel Plan Solves Stub Yard Problem

CONSIDERABLE ingenuity is often required in the design of facilities in crowded terminals where the land available will not permit the desired arrangements for the most economical operation, and this is particularly true of storage yards for passenger trains. Often the site will lend itself only to



Plan of the Stub Yard at St. Louis

the construction of a stub yard, while it is desirable that the tracks be connected with ladders or other connections at each end so that after a train has headed into a yard track, the locomotive can be uncoupled and taken to the enginehouse or elsewhere as needed. With the ordinary stub yard, such a movement is impossible and it is necessary for the locomotive to run around the train and then push it into the yard. Such an operation occasions delay, as well as requiring track room which it is not always easy to provide.

The Terminal Railroad Association of St. Louis, recently confronted with a problem of this kind, worked out a solution which provides a stub yard with many of the advantages of through tracks and made available a tract of land for a passenger storage yard located conveniently with respect to the Union Station. The site lies west of the station and from its location it could be utilized only for a stub yard, connected with the running tracks at its east end. Trains approaching it from the station have the locomotive at the west end of the train, while trains taken from the yard are backed into the station tracks. Since the movements of these trains between the station and the yard are scheduled the same as the arrival and departure of regular trains at the station, it was essential that delays in handling the trains at the yard be eliminated to as great a degree as possible.

This object was attained by installing a series of crossovers near the ends of the storage tracks, as shown in the accompanying sketch of the yard, to permit the locomotive to cross over to an unoccupied track and to back out of the yard. In certain cases, after being detached from its train, it is coupled to an outgoing train, which it backs into the station. As it seldom occurs that all the tracks are occupied at the same time, this arrangement has resulted in satisfactory operation. We

are indebted to Henry Miller, president, and H. J. Pfeifer, chief engineer, of the T. R. R. A. of St. Louis, for the foregoing information.

Freight Car Loading

LOADING of revenue freight during the first 26 weeks of this year (January 1 to June 30) amounted to 24,457,105 cars. This was a decrease of 1,063,935 cars as compared with loading in the corresponding period of last year and of 876,127 cars as compared with 1926.

The loading amounted to 1,003,049 cars during the week ended June 30, a decrease of 18,389 cars as compared with the total in the corresponding week of last year and of 62,592 cars as compared with 1926. Coal loading, with a total of 146,294 cars, however, showed an increase of 1471 cars as compared with loading a year ago. Ore loading amounted to 68,336 cars, an increase of 1932 cars as compared with the corresponding week of last year. Other commodity classification totals showed declines as compared with 1927. Loading in the Southwestern district only was larger than a year ago. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
Week Ended Saturday, June 30, 1928			
Districts	1928	1927	1926
Eastern	233,494	233,724	247,933
Allegheny	207,091	209,362	217,962
Pocahontas	53,171	56,025	56,304
Southern	138,438	148,641	148,260
Northwestern	157,554	160,317	164,123
Central Western	137,737	142,436	152,472
Southwestern	75,564	70,933	78,587
Total West. Dist.	370,855	373,686	395,182
Total All Roads	1,003,049	1,021,438	1,065,641
Commodities			
Grain and Grain Products	36,757	44,249	50,814
Live Stock	24,226	26,256	26,330
Coal	146,294	144,823	172,385
Coke	9,705	9,985	11,616
Forest Products	66,960	67,590	70,696
Ore	68,336	66,404	72,904
Mdse. L.C.L.	258,804	260,545	261,858
Miscellaneous	391,967	401,586	399,038
June 30	1,003,049	1,021,438	1,065,641
June 23	986,789	1,018,060	1,055,362
June 16	1,003,292	1,016,479	1,036,643
June 9	995,960	1,028,367	1,052,471
June 2	934,214	911,510	944,864
Cumulative total, 26 weeks	24,457,105	25,521,040	25,333,232

The freight car surplus averaged 336,181 cars during the period ended June 30, as compared with 330,499 cars on June 15. The total included 170,606 box cars, 114,710 coal cars, 25,073 stock cars and 17,183 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended June 30 totalled 68,796 cars, an increase of 920 cars over the previous week and an increase of 17,211 cars over the same week last year, which increase is accounted for partly by the national holiday, July 1, coming in the corresponding week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
June 30, 1928	68,796	37,225
June 23, 1928	67,826	36,233
June 16, 1928	68,375	37,091
July 2, 1927	51,585	33,762
Cumulative Totals for Canada		
June 30, 1928	1,665,103	1,028,467
July 2, 1927	1,569,167	1,002,330
July 3, 1926	1,485,072	971,034

THE LOUISVILLE & NASHVILLE VETERANS' CLUB has entered into an agreement with the Inter-Southern Life Insurance Company whereby all employees of the system will be permitted to participate in a sick benefit plan. Under the arrangement the employee will be paid when he becomes sick or disabled or after he has reached the age of 65.

Looking Backward

Fifty Years Ago

The Janney coupler has been adopted by the Pennsylvania as the standard for passenger cars, and will be applied to all new cars and cars needing repairs. The coupler leaves but 2½ in. between the platforms of connecting cars. It couples automatically and is uncoupled by the use of an upright lever near the platform railing. The use of the coupler gives a singular steadiness to the motion of the train and avoids the usual unpleasant jarring and jerking of the cars. *Chicago Railway Review*, July 13, 1878.

A new line of transportation to the Pacific has been opened during the present week. Seven carloads of merchandise from Philadelphia and Baltimore bound for San Francisco, passed through Springfield, Ill., July 8, coming by the Baltimore & Ohio and the Ohio & Mississippi (now part of the former railroad) and going to Beardstown, Ill., and from thence by the Chicago, Burlington & Quincy to Omaha. Arrangements have been made for the continued shipment of goods by this route.—*Chicago Railway Review*, July 13, 1878.

Baltimore's Independence Day was a notable anniversary this year. Fifty years ago to a day ground was broken near that city for the construction of the Baltimore & Ohio Railroad. Even at that date the future of railroads had already been anticipated by Charles Carroll of Carrollton, then 90 years of age, the only surviving signer of the Declaration of Independence. Amidst tremendous applause when he had finished laying the corner-stone on July 4, 1828, he said: "I consider this among the most important acts of my life, secondary to that of signing the Declaration of Independence, if even second to that."—*Railway Age*, July 11, 1878.

Twenty-Five Years Ago

Henry Walters, chairman of the board of the Atlantic Coast Line, has been elected chairman of the board of the Louisville & Nashville, succeeding August Belmont.—*Railway Age*, July 17, 1903.

The Boston & Albany, after two months' trial serving meals a la carte, decided to return to the table d'hôte as formerly used. The reason is that dinner service can thereby be improved and the time for serving substantially reduced.—*Railway Age*, July 17, 1903.

The Southern Pacific has appointed a Japanese land and immigration agent, with headquarters at Kobe, Japan, whose duty it will be to encourage Japanese investors and rice farmers to purchase lands and settle in the Gulf Coast country of Louisiana and Texas.—*Railroad Gazette*, July 17, 1903.

The branch of the Chicago Great Western from Fort Dodge, Iowa, to Council Bluffs, 135 miles, is practically completed and will be opened for train service, on July 20. Trains cannot be run into Omaha until after the litigation between the Great Western and the Union Pacific in regard to a right-of-way is settled.—*Railway Age*, July 17, 1903.

Ten Years Ago

A total of 560 railroad companies, a large number of them subsidiary, terminal, union station and switching companies, have now been definitely listed as being under federal control.—*Railway Age*, July 12, 1918.

The railroads during the month of April recovered from the effect of the difficult operating conditions experienced during January to such an extent that for the four months, January to April combined, they handled an increase of 822,000,000 ton miles of revenue freight, or 7 per cent, as compared with the corresponding period of 1917, with 3.2 per cent less train miles, 7.4 per cent less car miles and 4.1 per cent less locomotive miles.—*Railway Age*, July 12, 1918.

Communications and Books

Business Men and the Railways

ST. LOUIS, MO.

TO THE EDITOR:

I have just read with much interest your editorial, page 1494, issue of June 30, 1928, "Helping Business by Hurting the Railways." I doubt if anyone familiar with conditions to which you refer could reasonably question the logic of your analysis. However, I do question your statement and conclusions as contained in the following paragraph:

"We have not cited the attitude of the business interests of Chicago toward the railways because it is exceptional. We have cited it because it is typical. If it were exceptional it would not be so important. The future of the railways is in danger largely because this same attitude is assumed by the business interests in almost every territory and community."

My conclusions, based upon over twenty years experience in my present position, constantly in contact with the carriers and the shippers, not only in this immediate district but with those of other districts as well, leads me to conclude that the case you cite is rather exceptional.

It has always been the attitude of this chamber, and we challenge any statement from anybody to the contrary, that we never have and never intend to attack the rates per se, but have always maintained that the carriers should have ample compensation for the service rendered.

We are always prepared and willing to accept any scale or basis of rates applicable alike to other communities in our competitive territory, recognizing after all that the important feature is service and that every community should be kept on an equitable basis of rates and given the best possible service in the exchange of its commodities within its legitimate trade territory.

In other words, as we have expressed it on more than one occasion, we are willing to pay as high a price for transportation as any other community will pay, but we want the very best quality that can be produced.

P. W. COYLE,
Traffic Commissioner, St. Louis
Chamber of Commerce.

Comparing Unit Fuel Consumption, Road With Road

CHICAGO, ILL.

TO THE EDITOR:

Study of the monthly fuel performance records develops interesting discrepancies which make the present methods of computing comparables somewhat erratic and seemingly unfair. At or near the top in best performance, we almost invariably find the oil-burning railway. On the other hand, closely pressing the oil burners, appear those lines which have a pre-dominating movement of the low-grade bulk commodities such as coal and ore.

Within the past few years there has been a marked improvement in average train speeds on certain railroads. I have in mind one of our best equipped double-track railways. In speeding up its freight trains, this line has accomplished a surprising result not so much by eliminating stops and delays as by increasing actual running speeds. This takes power and fuel, yet its fuel performance is still up with the best.

For the purpose of illustration let us look at the following published figures for January, 1927:

	Gross ton-miles per train-hour	Gross tons per train	Car-miles per car-day	Lb. coal per 1,000 gross ton-miles
Gulf, Colorado & Santa Fe (Oil)	27,839	1935	27.2	104
M-K-T (Oil)	29,402	2054	33.9	110
Pittsburgh & Lake Erie (Coal)	30,604	2721	9.2	111
Union Pacific (Coal) ..	34,156	2050	49.9	120

The purpose of these comparisons is to show that, in fuel performance, the Union Pacific probably did better than the Pittsburgh & Lake Erie and both probably did better than the two oil-burning lines which show the lower fuel consumption figures in the last column.

We all know that the units adopted for comparison between coal and oil are wild ones. Perhaps that cannot be helped, and if not, it may be dismissed from the argument. The fact that oil can be controlled to such an extent that there is less heat wastage is in its favor, but that is fair competition.

The Union Pacific, through the speed of its trains, delivered 22 per cent more ton-miles per train-hour than the Gulf, Colorado & Santa Fe. It delivered 16 per cent more than the Katy and 11 per cent more than the Pittsburgh & Lake Erie. Gross tons per train do not differ in these ratios; but look at the car-miles per car-day. The road showing best fuel performance in coal, only moved its cars 9.2 miles per day, while the road lowest of the four, moved its cars 39.9 miles per day.

This brings us to the kernel of the argument. The Union Pacific delivers 11 per cent more gross ton-miles per train-hour, moves the cars on its line 81 per cent faster and burns 8 per cent more fuel than the coal burning road which tops the list in fuel performance.

What can be said as to the fairness of the Interstate Commerce Commission's method of presenting its figures, in view of these deductions? It could say that the figures are properly presented or the writer could have drawn no conclusions. The answer is that the layman reads the fuel performance column for what it says. He doesn't know that it isn't what it seems to be.

L. F. WILSON.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Canadian Pacific Railway Company—Trial Bibliography. Chronological bibliography of material by and about the C.P.R., as found in a number of Canadian and U. S. libraries. 94 p. Pub. by Library, Bureau of Railway Economics, Washington, D. C., Apply.

Grounds of Proof and Procedure Before the Commission, by C. R. and F. C. Hillyer. A discussion of the kinds of rate cases and what is expected of one appearing before the Commission. The treatment of the subject is non-technical. 4 vols. Pub. by LaSalle Extension University, Chicago, Ill. \$1 each.

Sixth Annual Report of the Railway Rates Tribunal for the Year 1927. "It is with satisfaction that we report the close of the transitory period, the arrival of the Appointed Day (Jan. 1, 1928) and the inauguration of the new system of railway charges under the Railways Act, 1921." p.2. The summary of procedure in establishing the new system will always be helpful in studies of railways and rates in Gt. Brit., p.2-9. 32 p. Pub. by H. M. Stationery Office, London, Eng., Available in this country at the British Library of Information, New York City. 1 shilling.

Periodical Articles

Completion of the Franco-Spanish Trans-Pyrenean Railway, by Lucien Memminger. First of three proposed routes opened. Illustrations and map. Commerce Reports, July 2, 1928, p.23-25.

The Development of the Automatic Coupler in America, by A. G. Williams. Illustrated with a portrait of Major Janney and pictures of the earliest and latest couplers. Baldwin locomotives, July 1928, p. 25-31.

Odds and Ends of Railroading

An Outstanding Clock

The clock to be placed on the north facade of the new 36-story New York Central Building, facing Park Avenue, will be one of the most conspicuous and artistic sculptural decorations ever erected in New York. Figures symbolic of transportation and industry, carved in limestone, will ornament the clock. The dial, 9 ft. in diameter, will be illuminated at night. The entire piece of sculpture, which is the work of Edward McCartan, is 45 ft. wide and 19 ft. high from its base to the top of the Liberty Cap surmounting the clock.

The Omnipresence of Railways

It is an unusual occurrence that has no connection directly or indirectly with railways. Take for example, the vice-presidential nomination, Trans-Atlantic airplane flights and the Olympic games. Three more dissimilar affairs could hardly be imagined and yet they have railway atmosphere. Senator Curtis, the vice-presidential nominee, once sold fruit and later was a hackdriver at various stations in Kansas; Amelia Earhart, the first woman to fly across the Atlantic, is the daughter of a former attorney for the Chicago, Rock Island & Pacific; Jane Fauntz, holder of the world's record for the 100-meter breast stroke, who will represent the United States at the Olympic games in that event, is the daughter of assistant engineer C. F. Fauntz of the Chicago terminal improvement department of the Illinois Central.

260 Years' Service

The New York Central is a family enterprise—and it is not the Vanderbilt family—on the Syracuse division. An Irish immigrant named Welch began extending and rebuilding the road in 1852 as a member of a section gang. He was drowned 22 years later, leaving six boys and three girls to carry on the work. Three of the six sons and two grandsons are still carrying on, two sons have retired after serving about a quarter of a century each, and one gave his life in the service. J. H. Welch, conductor of the Empire State Express, has served 53 years; Richard, another conductor, 55 years, and Matthew, also a conductor, 36 years. One of the girls served for a time as crossing watchman, and one is a widow of another railroader who lost his life in action. The Welch family's total service is 260 years.

A Coincidence Recalled

The opening of a through route to Pensacola by the St. Louis-San Francisco, using the rebuilt line of the Muscle Shoals, Birmingham & Pensacola, recalls an interesting coincidence of some ten years ago. At that time the line was known as the Gulf, Florida & Alabama. Not far away was another G. F. & A., which stood for Georgia, Florida & Alabama in this case. Both lines, with the same initials, ran from the gulf to points in the interior and both were about 150 miles long. What made the coincidence really surprising, however, was that the northern termini of both lines were at towns bearing the same name, the Gulf, Florida & Alabama ending at Kimbrough, Ala., and the Georgia, Florida & Alabama at Kimbrough, Ga.

A Love Story

(AS A RAILROAD ADVERTISING MAN WOULD WRITE IT:)

He met her in the commodious, palatial and completely appointed passenger terminal at Sixth and Grand—take any car marked "Depot". Together they watched the busy but always courteous railroad employees at their tasks, and in their minds was the single thought that this great corporation was not bloodless, but really warm-hearted and human, anxious to serve.

Their romance blossomed on the special excursion train of clean, comfortable coaches and parlor cars which transported them quickly, safely and without cinders to Glen Woods, that favorite playground of the nation—served exclusively by the World's Greatest Railroad.

He breathed the words she longed to hear as they sat on an embankment overlooking the railroad yards, where giant locomotives shunted bright new freight cars into long trains which were whisked away to their destinations, in the quickest time and without damage to the cargoes. As she whispered, "Yes!" the happy, well-fed, prosperous-looking railroad men sent up a cheer for the railroad, their railroad, then leaped eagerly to their tasks, full of the spirit of kindly, helpful service.

They were married within earshot of the golden-tongued locomotive bells and hastened at once to the great passenger station, dedicated to service. There they were assisted to their drawing room in a tastefully appointed sleeping car of the most modern design—standard equipment on the Transcontinental Limited. A friendly conductor, whose watchwords were courtesy and service, took up their tickets, which had been purchased at a ridiculously low price—see your local agent for low tourist rates—and the happy, interesting, educational never-to-be-forgotten journey to America's scenic wonders, all reached via the World's Greatest Railroad, was on. Timetables and full information free at all ticket offices.—Life.

Times Change

Once upon a time, or, to be precise, 50 years ago, railway men in Britain were "sacked" if they whistled, joked, or wore any red clothes. Further, if they wished to be promoted, the best thing to do was to go to church.

This amazing, and nowadays laughable, state of affairs was revealed at the Institute of Transport in London, when Raymond Carpmael, of the Great Western Railway, gave extracts from the former rule book of the Taff Vale Railway.

Every worker was required (by Rule 12) "to come to duty in person and clothes, shaved and with shoes blacked"; moreover, they were "to keep their hair cut."

After appearance, behavior was regulated.

"Not any instance of intoxication, whistling, or levity on duty will be overlooked; besides being dismissed (provided in Rule 40) the offender will be liable to punishment."

Rule 266 went further and prescribed fines for "talking, shouting, hooting or making any unpleasant noise or unseemly actions, whether by hand, mouth or otherwise."

Sunday observance was enforced by Rule 26, which read:

"It is urgently requested that every person on Sundays and other holy days, when he is not required on duty, will attend a place of worship, as it will be the means of promotion when vacancies occur."

In those days there were no "smokers"—and no "strap-hangers":

Rule 50.—Smoking by any passenger, or by any person, whether in the employ of the company or not, upon any part of the company's premises, or in any carriage or train, is strictly forbidden, whether such person is traveling or otherwise.

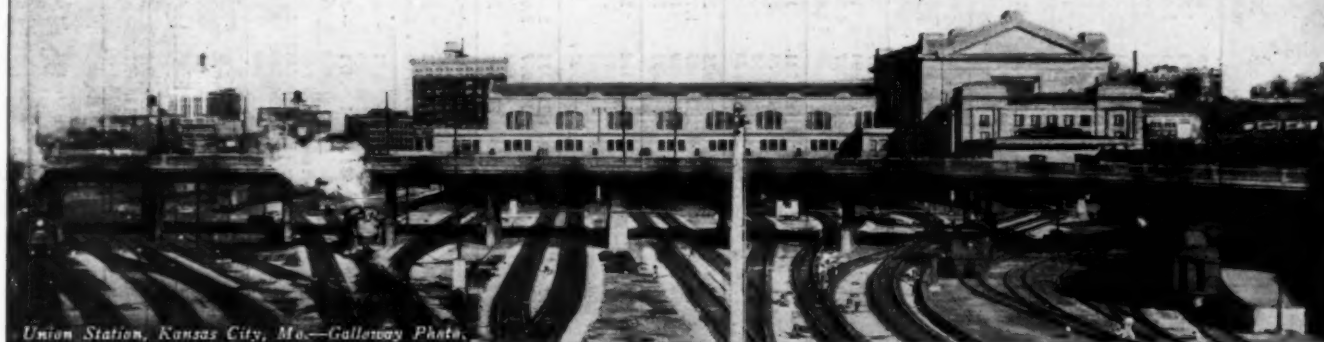
Rule 54.—The company's officers and servants are not to allow any person to stand in any of the carriages or wagons, but compel them to sit upon the seats or floors; should they refuse to comply, they must be removed and given into the charge of the company's police.

In striving for safety the company ordered:

"Not any contractor, officer, servant or other person in the employ of the company, or in the service of any contractor, is to use any wearing apparel of a red or pink color, as it might be the means of causing enginemen and others to think it was a signal of danger."

Fines of a day's wages, and even six days' wages, were provided for workers who broke the company's rules.

NEWS of the WEEK



Union Station, Kansas City, Mo.—Gallaway Photo.

THE INTERSTATE COMMERCE COMMISSION has extended from June 30 to December 31 the effective date of its order requiring the installation of automatic train control as it affects the New York, New Haven & Hartford.

THE CHICAGO & NORTH WESTERN ON July 2 issued checks to reimburse the passengers who sustained losses on April 16 when a masked bandit boarded the observation car of the Overland Limited at Chicago and robbed the occupants of nearly \$2,000.

THE NATIONAL COMMITTEE on calendar simplification, at a meeting held in Washington on July 9, appointed a number of sub-committees to sound sentiment among various industries and other groups toward the plan for a thirteen-month calendar. A. H. Harris, vice-president of the New York Central, and M. O. Lorenz, director of the Bureau of Statistics of the Interstate Commerce Commission, were appointed members of a sub-committee on transportation.

THE NORTHERN PACIFIC has presented the State of Oregon with 700 acres of land for its new state park. The land, near Portland, is on the slope of Saddle mountain. The Northern Pacific acreage will complete the park project, which was started in 1917 when the state obtained 800 acres through an act of Congress authorizing the gift for park purposes.

THE ST. LOUIS-SAN FRANCISCO has combined its St. Louis-Dallas train, the "Texas Limited," with its St. Louis-Oklahoma train, the "Meteor," to be operated as one train between St. Louis, Mo., and Monett instead of the two trains which were previously scheduled 1 hour and 22 minutes apart. However, no change has been made in the Texas Special and the Blue Bonnet, two fast trains between St. Louis and Dallas, Tex. and Ft. Worth. A total of 12 local trains have been discontinued. These include two between Monett, Mo., and Joplin, two between Joplin and Ft. Scott, Kan., two between St. Louis and Monett, two between Holdenville, Okla., and Tulsa, two between Ada and Tulsa and two between St. Louis and Newburg.

Pennsylvania Trains Soon to be All-Steel

By the end of this year, the Pennsylvania Railroad expects to have in service 5,501 steel passenger-train cars, the orders which have been given for delivery in 1928, which total 629 cars, being sufficient to carry out the purpose of the railroad, adopted in 1906, to use in regular passenger-train service no cars except those made wholly of steel. In 1908, the steel passenger cars in service numbered 201, and in 1918, the total had been brought up to 3,324.

This bit of information is given out in a 12-page pamphlet, illustrated profusely with pictures of passenger cars of the different eras, beginning with 1831, when the "John Bull" made its first trip, with two coaches, in the neighborhood of Bordentown, N. J.

B. L. F. & E.

The Brotherhood of Locomotive Firemen and Enginemen, meeting in annual convention at San Francisco, Cal., on June 26, endorsed the plan of a shorter week for enginemen, firemen, hostlers and their helpers on railways in the United States. At the same time the Brotherhood authorized a campaign to procure a federal law which would require the manning of large locomotives with two enginemen. Earlier in the convention, which lasted from June 11 to July 4, the delegates voted to make Cleveland, Ohio, present headquarters of the "Big Four" Brotherhoods, the permanent triennial convention city. About 1,000 members of the Brotherhood were present at the meeting.

Railway Fire Protection Association

News letter No. 31 of the Railway Fire Protection Association (dated June, 1928), contains minutes of the meeting of the executive committee, held at Atlantic City, May 6, together with information from the meeting of the National Fire Protection Association which was held at Atlantic City in the same week. Other features of this news letter are notes of the meeting of the Eastern Section in New York on June 12

and a report of the conference with the car painters, A. R. A., at Reading, Pa., on June 4 and 5. Instructive memoranda are given concerning the causes of a half dozen recent fires.

Public Hearings on N. Y. West Side Plan

The New York Transit Commission has announced that public hearings will be opened in that city on July 17 on the so called West Side plan of improvements for Manhattan. The plan which has been the subject of negotiations between the city and the New York Central for some time involves the elimination of several grade crossings and other changes in the property of that road.

Drummers Can Coordinate Rail and Automobile

In the last number of *Timely Railroad Topics*, issued by the Atlantic Coast Line, a comparison is made between the cost of operating an automobile by a traveling salesman, and the cost of railroad travel. The article uses figures published by the National Automobile Chamber of Commerce which show that in addition to operating costs, the expense due to depreciation, tires, repairs, insurance, etc., run the per-mile cost of an average priced car up to a minimum of about 10 cents. Whereas the average cost of railroad travel in 1927 was 2.89c per mile.

"Under some circumstances," the article continues, "salesmen can no doubt use the automobile more advantageously than they can use trains. But many salesmen who use automobiles could cover their territory as efficiently by train, and could thereby save money. Automobile rental agencies on the drive-it-yourself basis, used in connection with train travel, offer a solution to many of the problems connected with the use of automobiles by salesmen. Under this plan salesmen use trains for the trips between principal points and rent automobiles at a specified rate per mile for use in visiting customers in or near these cities. By doing this they take advantage of the cheaper rail travel for distances of any length, and have the use of an automobile at the time

(Continued on page 84)

Revenues and Expenses of Railways

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road	Av. mileage operated during period.	Operating revenues			Maintenance of way and equipment			Operating expenses			Net from railway operation.	Operating income (or loss).	Net operating income, 1927.	Net operating income, 1928.
		Freight.	Passenger (inc. misc.).	Total.	Structures.	Equip-ment.	Traffic.	Portation.	General.	Total.				
Chicago Great Western.....	May 1,495	\$1,632,858	\$215,199	\$2,021,723	\$330,108	\$364,214	\$78,640	\$811,294	\$59,024	\$1,655,338	\$366,385	\$287,364	\$141,758	\$62,127
Chicago, Indianapolis & Louisville.....	5 mos. 1,495	7,666,331	1,178,133	9,618,084	1,147,792	1,850,062	402,080	4,093,833	282,733	7,834,897	1,731,187	1,373,318	614,379	519,486
Chicago, Indianapolis & Louisville.....	May 647	1,156,488	233,703	1,552,988	158,120	310,542	41,852	553,763	34,693	1,123,233	410,753	351,360	223,822	294,544
Chicago, Indianapolis & Louisville.....	5 mos. 647	5,888,699	932,663	7,534,665	669,719	1,575,083	200,360	2,844,103	182,119	5,546,510	1,596,833	1,396,833	963,026	1,076,418
Chic., Mil., St. Paul & Pacific.....	May 11,250	11,280,940	1,350,901	13,921,243	2,787,124	2,547,526	306,252	4,272,906	372,882	10,809,604	3,111,639	2,886,566	1,850,162	.....
Chicago River & Indiana.....	5 mos. 11,251	48,345,605	6,303,085	60,001,476	8,259,950	11,375,157	1,145,055	21,524,253	1,596,881	44,247,508	15,753,968	12,093,172	10,657,339	211,194
Chicago River & Indiana.....	May 20	.....	.....	547,946	60,077	60,077	767	200,170	26,548	354,617	193,329	176,462	273,221	126,367
Chicago River & Indiana.....	5 mos. 20	.....	.....	2,837,692	278,275	60,077	3,877	1,056,671	93,651	1,759,779	1,077,913	871,037	1,361,298	1,266,367
Chicago, Rock Island & Pacific.....	May 7,565	7,771,362	1,529,718	10,293,570	1,552,059	2,148,276	238,722	3,859,761	326,427	8,149,455	2,144,115	1,506,544	1,133,909	1,200,953
Chicago, Rock Island & Pacific.....	5 mos. 7,568	39,244,839	7,746,947	51,623,353	6,920,665	10,474,863	1,182,044	19,375,471	1,679,939	39,611,947	12,010,406	8,828,388	6,884,738	6,326,531
Chicago, Rock Island & Gulf.....	May 516	386,226	62,441	494,839	76,804	83,115	19,654	192,070	16,616	390,663	104,176	76,033	47,322	50,743
Chicago, Rock Island & Gulf.....	5 mos. 516	2,052,963	330,582	2,601,604	334,175	290,474	97,814	970,289	84,645	1,760,178	841,426	705,487	564,257	734,434
Chic., St. Paul, Minn. & Omaha.....	May 1,746	1,603,248	281,997	2,057,361	376,960	420,362	42,629	905,621	79,900	1,830,016	227,345	113,875	60,974	208,970
Clinchfield Railroad.....	5 mos. 1,746	8,094,278	1,641,524	10,337,503	1,465,095	2,143,099	198,314	4,721,822	382,876	8,947,258	1,590,245	1,033,038	759,524	835,364
Clinchfield Railroad.....	May 309	539,716	14,785	566,265	69,841	138,844	21,257	125,096	17,624	372,964	193,301	118,262	201,390	280,104
Clinchfield Railroad.....	5 mos. 309	2,755,413	83,499	2,899,453	314,773	647,823	111,647	632,126	88,897	1,794,240	1,103,213	729,911	1,134,736	1,474,472
Colorado & Southern.....	May 1,036	724,195	82,086	909,199	194,905	181,715	16,179	335,727	43,213	768,693	140,506	74,189	62,104	21,067
Colorado & Southern.....	5 mos. 1,048	3,822,676	432,797	4,658,166	897,157	985,660	74,029	1,713,982	208,747	3,885,202	84,256	441,256	379,497	347,263
Ft. Worth & Denver City.....	May 533	585,275	144,201	824,198	111,838	145,026	23,345	235,157	37,998	573,914	69,6	222,783	227,430	143,206
Ft. Worth & Denver City.....	5 mos. 533	3,261,853	752,280	4,349,123	740,125	677,702	92,934	1,340,759	188,740	3,027,322	1,321,801	1,111,846	1,118,971	1,088,531
Wichita Valley.....	May 271	104,651	13,751	125,906	41,210	7,388	35	39,233	1,842	88,985	36,921	30,011	6,048	2,699
Wichita Valley.....	5 mos. 271	645,185	64,200	747,849	129,933	40,112	121	211,360	8,422	385,480	51,5	362,369	193,235	245,838
Columbus & Greenville.....	May 167	109,547	15,417	131,649	48,353	17,621	3,045	46,892	10,566	126,432	5,217	5,276	5,409	19,221
Columbus & Greenville.....	5 mos. 167	571,714	93,003	699,534	200,363	87,456	19,296	250,512	60,196	617,747	81,787	76,992	20,062	10,510
Conemaugh & Black Lick.....	May 22	75,431	.....	146,029	11,677	27,512	857	83,802	3,318	127,166	18,863	17,863	18,836	4,295
Conemaugh & Black Lick.....	5 mos. 22	295,208	612,704	638,288	141,169	4,586	396,948	16,547	16,547	622,538	101,6	14,834	13,338	53,759
Delaware & Hudson.....	May 881	3,217,496	228,964	3,706,805	351,833	687,744	53,976	1,206,497	154,484	2,471,631	1,233,174	1,147,524	1,147,931	868,462
Delaware & Hudson.....	5 mos. 881	13,459,232	1,267,468	15,885,481	2,048,925	3,874,143	260,988	5,999,979	814,104	13,060,229	2,825,252	2,385,734	2,312,394	1,927,819
Delaware, Lackawanna & Western.....	May 998	5,360,452	918,196	7,087,875	870,364	1,234,671	152,129	2,678,178	186,377	5,169,327	1,918,548	1,402,734	1,430,092	1,960,948
Delaware, Lackawanna & Western.....	5 mos. 998	24,009,463	4,638,252	32,437,385	3,469,324	5,767,290	75,2	8,041,226	5,391,601	24,396,159	8,041,226	5,391,601	5,391,601	5,747,821
Denver & Rio Grande Western.....	May 2,562	1,967,976	245,843	2,406,487	621,254	490,675	57,231	725,508	89,463	2,006,175	400,312	215,058	286,089	219,668
Denver & Rio Grande Western.....	5 mos. 2,550	10,089,595	1,227,004	12,184,809	2,462,604	2,552,119	285,710	3,730,859	434,556	9,579,551	2,603,258	1,679,664	2,005,456	1,909,417
Denver & Salt Lake.....	May 232	270,991	22,741	308,496	77,126	11,279	1,983	46,074	9,761	204,445	104,051	94,050	101,785	28,544
Denver & Salt Lake.....	5 mos. 240	1,378,108	123,871	1,578,956	265,179	409,927	8,709	318,121	45,840	1,045,998	527,958	489,928	518,482	122,865
Detroit & Mackinac.....	May 315	136,784	9,211	157,108	52,143	25,188	2,288	46,278	8,846	128,785	28,323	10,405	14,303	35,564
Detroit & Mackinac.....	5 mos. 315	497,096	61,618	603,443	143,632	125,635	9,963	216,630	28,588	520,403	83,040	25,322	43,052	76,184
Detroit & Toledo Shore Line.....	May 50	386,974	.....	391,728	56,869	37,414	3,274	101,827	9,453	208,837	151,331	151,331	75,502	18,646
Detroit & Toledo Shore Line.....	5 mos. 50	2,063,192	.....	2,086,145	190,765	180,842	17,794	528,216	39,201	956,818	1,129,327	976,409	571,155	586,796
Detroit Terminal.....	May 19	.....	.....	216,146	16,059	11,304	5	85,555	3,717	116,640	99,506	77,019	78,232	61,912
Detroit Terminal.....	5 mos. 19	.....	.....	877,747	79,014	67,570	30	391,714	18,884	557,212	320,535	231,034	237,835	251,438
Detroit, Toledo & Iron Range.....	May 495	874,012	3,273	895,002	133,394	139,164	11,676	257,292	29,693	569,158	325,444	269,603	193,384	99,633
Duluth & Iron Range.....	5 mos. 495	3,829,262	17,615	3,912,215	513,184	772,426	61,849	1,283,035	144,909	2,772,739	1,139,476	888,077	580,374	566,092
Duluth & Iron Range.....	May 275	630,536	2,864	719,381	146,916	122,408	1,755	160,998	20,512	452,389	266,792	225,837	226,506	348,479
Duluth, Missabe & Northern.....	May 307	1,746,808	4,130	1,980,905	223,596	185,220	2,716	305,623	110,801	1,738,851	37,3	1,242,054	992,667	1,371,019
Duluth, Missabe & Northern.....	5 mos. 307	2,044,648	25,530	2,360,417	597,715	829,738	15,202	828,613	110,801	2,382,053	100,9	21,636	579,675	4,617
Duluth, Winnipeg & Pacific.....	May 178	170,727	9,874	186,794	51,694	35,170	4,738	66,583	7,238	167,195	19,599	9,625	8,707	14,709
Duluth, Winnipeg & Pacific.....	5 mos. 178	999,976	54,490	1,083,414	156,481	233,382	23,430	378,965	40,166	837,804	245,610	190,403	155,734	161,322
Elgin, Joliet & Eastern.....	May 460	2,017,421	238,669	452,959	11,783	452,959	11,783	711,875	51,093	1,471,718	747,823	619,484	443,269	405,881
Elgin, Joliet & Eastern.....	5 mos. 460	9,760,247	44	10,735,883	954,548	2,131,330	75,273	3,706,493	284,436	7,146,122	3,006,770	2,142,941	2,142,941	2,591,424
Erie Railroad.....	May 2,047	7,906,239	859,542	9,542,123	1,193,851	2,018,272	166,926	3,489,102	292,524	7,191,574	3,580,296	2,000,274	1,991,539	1,868,074
Erie Railroad.....	5 mos. 2,047	35,490,711	4,136,113	43,105,715	5,001,959	10,013,123	840,080	17,364,902	1,451,659	34,882,581	8,223,134	6,416,735	6,081,386	4,656,003
Chicago & Erie.....	May 269	1,194,362	45,385	1,333,932	186,410	148,920	24,200	353,927	40,168	753,078	580,854	529,201	235,505	79,075
Chicago & Erie.....	5 mos. 269	5,230,030	208,211	5,878,559	784,635	798,156	124,086	1,820,425	203,111	3,728,072	63,4	2,150,487	1,892,218	174,325
New Jersey & New York.....	May 45	38,662	96,467	140,083	17,515	21,395	3,809	69,910	3,809	114,171	25,912	22,006	12,513	6,984
New Jersey & New York.....	5 mos. 45	155,738	465,509	644,676	86,069	124,848	8,055	358,763	17,523	595,174	49,502	29,940	132,506	134,710
N. Y., Susquehanna & Western.....	May 134	405,654	43,231	491,842	55,350	71,363	5,032	187,860	11,452	331,166	160,676	131,325	108,208	44,792
N. Y., Susquehanna & Western.....	5 mos. 134	1,606,206	216,610	2,031,951	254,606	307,553	25,146	966,553	56,288	1,609,890	79,2	422,061	275,255	131,760
Evansville, Indianap. & Terre Haute.....	May 146	125,571	4,157	135,902	26,444	36,699	2,016	52,979	6,081	123,819	12,083	9,240	5,176	1,026
Evansville, Indianap. & Terre Haute.....	5 mos. 146	760,174	20,733	808,588	111,612	128,435	11,463	296,937	29,607	578,000	230,588	205,443	45,186	81,406
Florida East Coast.....	May 855	1,202,723	390,660	1,741,234	170,224	189,073	32,059	446,880	47,861	901,463	839,771	679,423	578,203	219,022
Florida East Coast.....	5 mos. 857	4,270,157	2,830,514	7,994,150	978,525	1,049,438	199,193	2,305,349	242,909	4,934,982	3,059,148	2,305,298	1,926,169	1,565,887

Revenues and Expenses of Railways

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road	Av. mileage operated during period.	Operating revenues			Operating expenses				Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income, 1927.
		Freight.	Passenger.	(inc. misc.)	Traffic.	Trans- portation.	General.						
Fort Smith & Western	249	\$90,847	\$9,045	\$106,124	\$23,346	\$6,025	\$40,647	\$6,978	\$102,627	96.7	\$3,497	\$1,297	\$12,459
Galveston Wharf	249	496,900	47,636	577,302	137,243	29,715	216,880	34,266	526,704	91.2	50,598	32,271	29,078
	13	.....	.....	705,033	171,899	2,714	25,662	5,361	61,293	54.5	78,293	61,293	6,450
	13	.....	.....	705,033	230,661	13,854	135,437	24,433	469,053	66.5	235,980	150,980	151,801
Georgia R. R.	328	324,658	53,601	407,273	44,809	22,879	186,058	23,686	368,016	90.4	39,257	30,916	42,329
Georgia & Florida	328	1,692,442	284,070	2,110,774	219,825	117,623	958,754	117,872	1,832,172	86.0	298,702	252,405	309,758
	445	89,019	10,564	108,160	16,630	8,422	47,009	8,917	98,578	91.1	9,582	575	5,841
	445	541,748	61,326	643,593	94,631	45,722	261,456	41,633	539,323	83.8	104,270	61,241	69,444
Grand Trunk Western	345	1,668,096	158,462	1,929,662	317,087	377,629	643,873	67,891	1,452,425	75.3	477,237	385,368	254,457
Atlantic & St. Lawrence	345	7,602,882	8,815,930	16,418,812	907,522	1,946,520	3,119,574	328,342	6,574,749	74.6	2,241,005	1,815,166	1,341,630
	166	117,861	25,107	164,433	116,966	4,480	5,701	8,241	278,725	170.0	-115,296	-130,196	-192,197
	166	856,178	145,347	1,101,020	288,961	21,355	28,640	43,358	1,282,576	116.4	-181,556	-254,127	-593,783
Chic., Det. & Canada Gr. Tr. Jct.	59	303,811	1,179	344,793	5,049	15,737	96,949	4,032	126,707	36.7	218,086	207,736	179,536
Detroit, Grand Haven & Mil.	59	1,393,510	5,855	1,399,365	157,867	63,452	477,452	21,049	1,178,212	42.2	912,804	861,043	701,031
	192	739,645	26,274	819,904	157,726	62,743	291,985	19,881	542,032	66.1	277,872	268,987	176,300
	192	3,333,193	129,782	3,732,606	474,728	316,752	66,679	95,689	2,334,583	62.2	1,418,023	1,373,665	804,083
Great Northern	8,311	7,589,961	768,860	9,250,541	1,972,300	1,643,642	267,314	3,082,138	7,210,139	77.9	2,040,402	1,320,098	1,352,277
Green Bay & Western	8,311	31,737,806	4,322,713	39,802,824	5,780,528	7,830,229	14,865,615	1,215,108	31,174,683	78.3	8,628,141	5,208,905	5,106,096
	234	152,003	3,744	161,511	26,609	16,556	6,021	3,068	109,565	67.8	51,946	43,883	38,610
	234	641,479	29,913	707,049	100,324	92,097	26,315	14,132	508,599	71.9	198,450	158,286	134,086
Gulf & Ship Island	307	204,630	30,165	253,669	54,349	5,171	99,229	8,729	222,761	87.8	30,908	2,802	-14,030
Gulf, Mobile & Northern	307	1,184,447	1,513,603	2,698,050	291,612	270,897	528,773	42,399	1,178,212	77.8	335,391	201,544	120,901
	733	566,936	29,062	605,751	115,193	31,691	185,617	27,893	458,402	75.68	147,349	118,422	88,883
	733	2,782,416	153,909	3,057,600	537,476	472,141	158,954	141,745	2,260,831	73.51	796,769	640,776	459,614
Hooking Valley	348	1,659,677	54,869	1,916,633	182,321	346,277	16,223	500,217	1,095,048	57.1	821,585	707,894	596,314
Illinois Central	348	6,345,461	291,929	7,166,990	881,605	1,626,853	84,517	2,223,235	5,051,285	70.3	2,135,705	1,522,002	1,325,730
	5,031	9,476,593	1,622,535	12,214,034	1,707,197	3,623,750	243,420	4,492,640	3,624,217	81.6	2,253,398	1,585,013	1,546,732
	5,031	48,808,236	9,235,314	63,071,020	7,250,670	14,391,373	1,310,935	22,991,473	1,795,162	76.7	14,713,245	10,455,412	10,497,784
Yazoo & Mississippi Valley	1,709	1,745,569	262,380	2,151,057	371,974	43,963	43,279	814,971	66,638	80.9	410,545	245,023	170,785
	5,031	8,546,419	1,395,705	10,238,985	1,880,603	226,843	4,185,247	323,527	8,776,587	82.6	1,852,398	1,024,060	656,026
	5,031	1,233,727	1,898,322	3,132,049	2,079,171	3,505,368	286,699	5,322,424	4,102,711	81.5	2,658,302	1,920,229	1,719,531
	5,031	57,410,197	10,649,578	73,744,119	9,131,273	16,764,001	1,536,578	27,245,026	21,197,780	77.6	16,536,991	11,427,735	11,158,940
Kansas City, Mexico & Orient	272	246,143	6,020	260,132	96,164	42,673	97,386	14,416	260,440	100.1	-308	-4,427	1,502
Kan. City, Mex. & Orient of Tex.	272	1,218,813	27,423	1,246,236	366,023	245,141	445,697	52,882	1,153,148	89.3	137,619	117,421	170,625
	465	478,817	13,405	507,186	148,469	85,891	159,564	13,438	471,998	82.4	89,188	82,140	19,491
	465	2,367,280	77,603	2,521,624	754,137	430,813	754,224	63,171	2,052,208	81.4	469,614	433,710	125,431
Kansas City Southern	784	1,314,159	85,112	1,572,808	199,035	268,218	58,257	481,886	84,480	69.4	480,925	366,261	277,816
Texas & Ft. Smith	784	6,241,567	397,228	7,416,833	836,395	129,544	2,337,791	404,633	5,174,892	69.8	2,241,941	1,670,316	1,339,657
	81	211,103	6,838	239,003	12,178	7,949	63,253	10,841	114,517	47.9	124,486	112,345	87,443
	81	982,558	36,099	1,115,063	112,440	101,686	33,772	51,912	622,928	55.9	492,135	431,387	299,222
Kansas, Oklahoma & Gulf	326	229,881	2,772	232,653	83,293	10,501	67,177	10,108	168,870	71.0	68,885	58,123	35,977
Lake Superior & Ishpeming	326	1,167,717	15,375	1,308,457	337,815	55,528	332,277	50,021	877,367	68.5	381,190	327,141	251,769
	160	204,069	1,011	205,080	41,146	23,012	131,275	33,923	154,883	65.9	80,129	56,595	104,429
	160	453,464	10,703	508,670	151,763	2,636	190,709	55,136	541,214	106.4	-32,544	-105,450	-122,670
Lake Terminal	13	.....	.....	100,416	19,622	18,959	.....	2,053	93,795	93.4	6,621	2,096	6,466
Lehigh & Hudson River	13	.....	.....	396,553	86,290	101,690	244,462	9,916	442,358	111.6	-45,805	-66,681	-50,552
	96	264,814	1,462	277,653	25,200	34,226	2,655	85,994	10,113	57.0	119,465	100,628	75,614
	96	1,122,601	7,154	1,188,251	107,281	164,252	12,697	43,655	767,582	64.6	420,669	343,621	230,494
Lehigh & New England	216	569,267	1,642	578,540	78,751	138,385	4,600	16,497	403,461	69.7	175,079	154,186	146,875
	1,364	2,123,380	8,506	2,164,443	255,469	542,897	25,850	811,140	1,722,745	79.6	441,698	378,627	368,927
	1,364	5,604,067	521,325	6,164,238	534,372	1,146,200	137,625	2,447,661	4,467,721	67.5	2,151,517	1,750,300	1,619,979
	1,364	23,289,327	2,688,510	28,111,742	2,759,063	6,044,357	683,375	12,116,375	22,491,481	80.0	5,620,261	4,239,386	3,483,799
Louisiana & Arkansas	301	302,061	9,258	318,080	95,250	14,768	82,828	10,084	223,220	70.2	94,860	65,482	50,320
Louisiana Ry. & Nav. Co.	301	1,938,816	47,223	1,975,066	236,490	62,449	419,731	50,590	1,040,815	66.1	534,891	377,278	305,847
	338	1,307,863	9,543	1,317,406	265,088	13,582	113,617	10,689	220,667	72.3	34,583	61,249	34,972
	338	3,897,435	46,836	4,113,317	283,833	62,815	550,356	54,168	1,112,169	78.7	301,148	185,106	39,510
Louisiana Ry. & Nav. Co. of Texas	206	65,082	3,929	72,421	46,054	3,209	40,766	5,975	110,767	153.0	-38,346	-42,361	-52,380
	206	379,680	11,319	399,551	142,901	201,988	281,977	28,197	456,497	109.8	-40,686	-61,357	-131,481
Louisville & Nashville	5,077	9,333,512	1,389,957	11,379,551	1,744,036	2,637,461	241,091	3,916,972	3,551,913	78.6	2,431,207	1,868,577	1,879,834
	5,077	45,635,293	7,220,566	56,302,432	8,472,553	13,164,605	1,236,800	20,075,058	1,711,227	79.8	11,373,030	8,483,429	8,452,223
Louisville, Henderson & St. Louis	199	189,301	41,993	232,716	64,830	8,473	104,796	11,789	254,109	100.6	-1,393	-14,758	-21,784
	199	1,126,549	207,872	1,424,827	275,040	42,735	542,936	57,124	1,282,224	82.3	252,384	148,171	105,900
	1,122	1,221,443	234,275	1,607,851	305,388	16,981	608,388	57,049	1,282,224	79.7	325,627	212,348	210,631
	1,122	6,085,314	1,302,179	8,076,448	1,209,563	73,079	3,229,717	252,604	6,244,504	77.3	1,831,944	1,290,721	1,110,697

Revenues and Expenses of Railways

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net operating income, 1927.
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equip. ment.	Trans- portation				
Midland Valley	364	\$267,368	\$15,434	\$282,728	\$66,034	\$37,402	\$7,596	67.9	\$93,852	\$77,873	\$55,478
Minneapolis-St. Louis	364	1,290,087	82,462	1,419,620	197,761	172,662	38,111	59.9	569,257	485,628	420,514
Minneapolis-St. Louis	1,627	972,082	64,201	1,102,638	336,495	246,563	52,179	107.1	-78,429	-141,111	-303,024
Minneapolis-St. Louis	1,627	4,944,083	383,220	5,655,601	954,699	1,226,335	178,481	93.8	351,353	38,916	-278,420
Minneapolis-St. Louis	4,385	3,281,238	309,596	3,887,718	665,029	786,739	77,807	80.0	778,543	557,191	279,984
Minneapolis-St. Louis	4,385	14,552,606	1,852,728	17,686,716	2,486,539	3,739,507	7,267,320	82.2	3,140,290	2,081,424	1,182,878
Duluth, South Shore & Atlantic	5 mos.	330,710	47,870	422,334	118,855	73,010	17,128	91.7	36,246	6,246	43,315
Duluth, South Shore & Atlantic	5 mos.	1,575,649	298,827	2,025,709	332,806	344,345	901,979	83.7	330,269	180,187	198,170
Spokane International	165	72,846	8,017	87,547	13,353	9,482	29,277	71.8	24,726	19,206	19,851
Spokane International	165	363,101	48,804	443,772	75,617	44,241	158,378	73.3	109,509	81,906	49,969
Mississippi Central	161	126,084	6,968	137,720	25,659	22,522	36,422	73.8	36,054	28,831	25,561
Mississippi Central	161	616,194	36,578	674,942	101,264	101,452	180,629	70.9	196,067	134,263	155,029
Missouri & North Arkansas	364	112,664	10,066	132,997	26,630	17,805	53,463	86.3	18,205	15,693	17,383
Missouri & North Arkansas	364	584,792	52,726	679,021	149,654	107,609	285,517	93.2	46,511	32,870	24,945
Missouri-Kansas-Texas Lines	3,188	3,352,973	568,131	4,288,352	645,675	789,088	121,117	71.8	1,205,602	981,853	931,353
Missouri-Kansas-Texas Lines	3,188	16,583,797	2,760,567	21,090,894	2,605,084	4,021,075	6,776,285	70.4	6,171,100	4,937,246	4,808,776
Missouri Pacific	7,460	8,114,780	1,028,896	10,099,627	1,841,940	1,934,863	3,568,248	79.2	2,100,311	1,673,462	1,313,901
Missouri Pacific	7,460	41,708,798	5,492,887	51,368,360	7,288,921	10,132,169	18,635,016	77.7	11,467,022	9,249,722	7,284,130
Gulf Coast Lines	1,019	1,055,311	125,546	1,259,698	219,898	225,141	376,420	73.2	337,465	291,637	215,466
Gulf Coast Lines	1,019	5,563,736	702,980	6,632,453	1,113,774	1,073,284	2,054,390	71.4	1,913,743	1,666,413	1,221,763
International-Great Northern	1,159	1,249,523	166,715	1,543,742	249,765	240,581	376,021	79.68	313,611	272,117	156,260
International-Great Northern	1,159	5,861,236	876,164	7,366,682	1,176,330	1,259,766	3,153,883	82.81	1,266,669	1,056,926	585,118
San Antonio, Uvalde & Gulf	318	189,601	17,879	208,886	42,062	23,809	51,055	62.2	83,441	79,712	45,562
San Antonio, Uvalde & Gulf	318	823,749	91,796	980,775	195,771	109,223	264,144	65.0	343,443	324,332	173,902
Texas & Pacific	2,014	3,735,868	473,227	4,463,433	605,008	645,987	80,091	63.3	1,636,489	1,432,446	1,056,147
Texas & Pacific	2,014	16,747,246	2,383,708	20,329,389	2,920,002	3,232,012	386,194	67.7	6,573,699	5,677,228	4,117,107
Mobile & Ohio	1,159	1,283,889	89,597	1,431,401	259,615	265,218	58,995	78.3	309,194	226,894	171,116
Mobile & Ohio	1,159	6,314,848	462,848	7,184,037	1,072,641	1,338,776	2,698,858	78.3	1,559,166	1,444,458	857,515
Monongahela	171	584,817	14,566	603,818	85,000	82,000	1,010	53.9	278,089	256,021	157,573
Monongahela	171	2,780,968	86,865	2,892,215	425,000	410,000	1,010	53.9	1,234,549	1,134,305	657,897
Monongahela Connecting	7	177,173	.....	177,173	23,399	375	72,851	74.9	44,385	37,299	36,057
Monongahela Connecting	7	.....	.....	794,714	89,633	155,679	359,008	78.4	171,913	139,087	178,858
Montour	56	131,394	.....	131,394	28,749	43,175	27,765	81.9	23,829	22,329	54,365
Montour	56	601,023	22	601,023	75,436	197,617	3,654	76.5	141,738	123,238	158,816
Nashville, Chattanooga & St. Louis	1,259	1,508,396	282,956	1,944,287	249,020	430,785	87,982	78.4	419,473	356,202	344,723
Nashville, Chattanooga & St. Louis	1,259	7,190,865	1,420,448	9,407,914	1,285,906	2,099,581	3,383,326	81.2	1,767,353	1,402,966	1,661,528
Nevada Northern	165	75,478	4,900	88,701	14,397	8,186	14,395	47.9	46,135	35,353	35,781
Nevada Northern	165	330,636	25,945	395,062	61,534	47,883	73,357	53.3	184,509	131,679	134,148
Newburgh & South Shore	6	.....	.....	204,385	23,415	46,805	72,182	72.4	56,455	42,085	36,814
Newburgh & South Shore	6	.....	.....	816,062	73,795	207,148	328,790	77.9	180,697	115,015	135,004
New Orleans Great Northern	276	246,009	18,412	274,562	44,396	53,777	13,665	76.9	63,424	47,541	27,157
New Orleans Great Northern	276	1,243,437	96,273	1,384,440	193,162	238,344	66,335	71.0	401,457	314,219	221,403
New Orleans Terminal	20	18	.....	141,932	25,755	7,655	56,859	64.8	49,983	38,976	42,145
New Orleans Terminal	20	6,500	.....	709,438	128,457	40,098	285,484	65.3	245,948	190,871	156,239
New York Central	6,906	20,568,150	7,494,169	32,241,571	4,288,653	6,736,538	443,600	74.1	8,336,986	6,184,458	5,877,230
New York Central	6,906	93,945,468	37,295,043	150,511,434	18,516,196	32,932,801	54,486,271	77.2	34,358,837	23,809,375	22,420,600
Cincinnati Northern	244	340,091	4,440	354,573	41,498	70,610	114,793	68.5	111,618	90,678	57,545
Cincinnati Northern	244	1,670,557	22,179	1,728,864	193,782	351,377	580,377	70.1	516,305	400,591	238,832
Cleveland, Cinn., Chic. & St. Louis	2,396	5,661,102	1,159,794	7,583,026	927,803	927,803	272,959	77.3	1,721,183	1,320,285	1,111,772
Cleveland, Cinn., Chic. & St. Louis	2,396	27,137,079	5,797,738	36,125,144	3,716,823	7,808,303	13,820,473	77.0	8,297,168	6,248,509	5,372,171
Indiana Harbor Belt	130	.....	.....	1,032,284	110,394	92,644	4,605	61.4	398,254	341,853	294,777
Indiana Harbor Belt	130	.....	.....	5,052,457	508,614	586,614	23,102	68.4	1,598,273	1,315,356	1,061,915
Michigan Central	1,858	5,533,235	1,528,792	7,869,311	897,713	1,529,805	239,631	66.8	2,613,405	2,168,087	1,817,215
Michigan Central	1,858	26,250,936	7,491,578	37,171,133	3,717,133	7,302,644	12,802,097	68.5	11,738,664	9,262,091	8,823,717
Pittsburgh & Lake Erie	231	2,370,828	389,270	2,649,168	335,094	355,048	42,344	84.1	422,071	295,189	602,398
Pittsburgh & Lake Erie	231	10,916,228	999,080	12,332,204	1,538,273	4,123,197	139,406	84.4	1,927,912	1,165,903	2,664,332
New York, Chicago & St. Louis	1,690	4,151,543	4,452,559	8,604,102	578,808	876,728	129,725	71.9	1,249,942	999,315	798,162
New York, Chicago & St. Louis	1,690	20,387,893	633,413	21,771,964	2,549,120	4,193,340	662,160	73.4	5,770,550	4,453,726	3,320,368
N. Y., New Haven & Hartford	2,149	3,680,161	3,686,272	11,715,815	2,109,410	2,993,984	97,604	72.3	3,242,971	2,662,807	2,071,473
N. Y., New Haven & Hartford	2,149	29,618,674	18,683,262	54,271,204	8,013,983	10,336,977	460,232	73.4	14,416,738	11,326,637	8,678,403

Revenues and Expenses of Railways

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1928—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Total	Operating ratio	Net from railway operation	Operating income (or loss)	Net ry. operating income, 1927
		Freight	Passenger	Total	Traffic	Trans- portation	General					
New York Connecting	20	\$180,188	\$213,559	\$393,747	\$13,102	\$35,612	\$1,661	\$81,172	38.0	\$132,387	\$92,387	\$69,656
New York, Ontario & Western	20	1,040,699	1,189,592	2,230,291	125,804	222,110	8,357	1,611,531	35.0	773,839	573,639	472,400
	5 mos.	870,768	1,003,313	1,874,081	135,310	210,488	32,319	1,484,147	35.0	773,839	573,639	472,400
	5 mos.	3,196,326	4,380,002	7,576,328	374,768	2,225,897	137,998	3,966,666	90.6	413,316	209,397	154,923
Norfolk & Western	2241	8,238,941	444,576	8,683,517	1,382,106	2,175,743	258,642	5,559,050	61.9	3,426,581	2,626,186	2,882,832
	5 mos.	36,819,205	2,300,265	39,119,470	6,232,869	10,864,920	1,296,241	26,993,530	66.3	13,678,071	9,674,819	10,772,350
	5 mos.	3,633,373	36,883	3,670,256	101,009	27,193	30,100	549,573	74.5	188,261	139,069	112,035
	5 mos.	3,811,329	186,350	3,997,679	541,114	1,432,601	150,961	2,731,791	71.7	1,079,538	833,616	684,164
Norfolk Southern	6708	6,433,159	781,329	7,214,488	1,805,237	2,746,234	263,615	6,813,531	86.2	1,094,541	374,388	825,868
	5 mos.	29,474,928	3,977,740	33,452,668	5,482,551	11,303,350	1,279,325	28,917,238	79.0	7,709,393	4,303,625	6,283,241
	5 mos.	2,914,347	157,971	3,072,318	111,672	242,936	27,139	482,700	94.4	28,571	-12,026	-14,477
	5 mos.	1,262,363	655,154	1,917,517	497,812	1,140,669	124,084	2,246,865	103.7	-79,437	-282,773	-302,626
Northern Pacific	6708	6,433,159	781,329	7,214,488	1,805,237	2,746,234	263,615	6,813,531	86.2	1,094,541	374,388	825,868
	5 mos.	29,474,928	3,977,740	33,452,668	5,482,551	11,303,350	1,279,325	28,917,238	79.0	7,709,393	4,303,625	6,283,241
	5 mos.	2,914,347	157,971	3,072,318	111,672	242,936	27,139	482,700	94.4	28,571	-12,026	-14,477
	5 mos.	1,262,363	655,154	1,917,517	497,812	1,140,669	124,084	2,246,865	103.7	-79,437	-282,773	-302,626
Northwestern Pacific	477	1,262,363	655,154	1,917,517	497,812	1,140,669	124,084	2,246,865	103.7	-79,437	-282,773	-302,626
Pennsylvania R. R.	10515	39,457,289	10,611,090	50,068,379	7,038,078	18,824,852	1,687,179	40,041,083	72.6	15,127,255	11,900,765	10,490,786
	5 mos.	176,940,911	54,021,969	230,962,880	30,941,590	93,374,798	7,981,119	193,696,181	76.2	60,439,594	47,270,013	40,968,194
	5 mos.	83,841	22,575	106,416	13,476	69,524	2,401	193,927	169.2	-79,284	-79,284	-29,127
	5 mos.	317,937	93,031	410,968	54,034	331,148	14,352	735,380	165.8	-291,889	-291,889	-185,455
Baltimore, Chesapeake & Atlantic	130	317,937	93,031	410,968	54,034	331,148	14,352	735,380	165.8	-291,889	-291,889	-185,455
Long Island	403	1,157,129	2,172,944	3,329,073	437,293	1,361,559	97,054	2,345,257	66.4	1,189,115	957,824	799,741
	5 mos.	4,665,748	9,606,953	14,272,701	1,380,094	6,681,751	412,477	11,902,183	78.3	3,306,322	2,686,213	2,021,869
	5 mos.	473,363	343,379	816,742	139,352	370,166	27,724	692,163	80.4	169,072	96,329	65,323
	5 mos.	1,937,336	1,702,365	3,639,701	82,974	1,940,710	130,350	3,433,862	89.7	393,495	226,526	114,652
West Jersey & Seashore	370	1,937,336	1,702,365	3,639,701	82,974	1,940,710	130,350	3,433,862	89.7	393,495	226,526	114,652
Peoria & Pekin Union	19	29,725	1,472	31,197	21,829	63,791	8,084	118,494	73.4	42,928	25,816	48,981
	5 mos.	128,277	5,049	133,326	88,891	162,441	37,888	262,158	66.9	192,817	192,817	291,500
	5 mos.	3,392,516	197,597	3,590,113	648,147	779,849	129,607	2,805,562	73.4	1,018,699	797,895	683,153
	5 mos.	15,055,622	1,076,726	16,132,348	3,755,352	5,990,279	552,392	12,409,576	72.5	4,718,408	3,693,677	3,271,148
Pittsburgh & Shawmut	102	160,610	2,624	163,234	30,907	42,889	7,604	103,828	62.9	61,146	59,702	61,959
	5 mos.	812,054	26,378	838,432	178,683	228,145	33,392	538,782	63.9	308,749	302,200	272,228
	5 mos.	351,305	5,447	356,752	70,994	64,934	18,781	201,902	57.5	164,403	101,711	164,850
	5 mos.	1,512,884	28,642	1,541,526	329,702	331,980	92,937	981,387	57.7	718,405	483,835	780,625
Pittsburgh, Shawmut & Northern	198	160,610	2,624	163,234	30,907	42,889	7,604	103,828	62.9	61,146	59,702	61,959
	5 mos.	812,054	26,378	838,432	178,683	228,145	33,392	538,782	63.9	308,749	302,200	272,228
	5 mos.	351,305	5,447	356,752	70,994	64,934	18,781	201,902	57.5	164,403	101,711	164,850
	5 mos.	1,512,884	28,642	1,541,526	329,702	331,980	92,937	981,387	57.7	718,405	483,835	780,625
Quincy, Omaha & Kansas City	249	244,486	47,924	292,410	31,829	50,523	5,892	127,926	77.9	36,356	33,285	23,119
	5 mos.	1,404,712	274,128	1,678,840	158,764	259,452	29,814	603,466	77.9	170,662	155,362	120,811
	5 mos.	302,494	59,301	361,795	40,371	26,860	2,276	80,012	134.9	-20,711	-25,556	-23,142
	5 mos.	1,404,712	274,128	1,678,840	158,764	259,452	29,814	603,466	77.9	170,662	155,362	120,811
Reading	1136	7,031,849	660,597	7,692,446	82,189	2,804,686	201,320	5,896,379	73.1	2,165,267	1,698,706	1,793,954
	5 mos.	31,336,653	3,402,301	34,738,954	4,643,681	13,932,586	1,020,104	28,871,244	78.7	7,800,545	5,815,169	6,257,579
	5 mos.	135,707	121,873	257,580	23,554	110,375	5,045	297,905	107.8	-21,433	-58,783	-84,916
	5 mos.	583,177	495,991	1,079,168	127,180	927,806	27,501	1,482,223	127.8	-322,205	-508,955	-628,722
Atlantic City	161	583,177	495,991	1,079,168	127,180	927,806	27,501	1,482,223	127.8	-322,205	-508,955	-628,722
Perkiomen	41	100,269	2,843	103,112	17,937	50,271	1,238	76,185	71.9	29,780	26,246	18,481
	5 mos.	470,808	500,571	971,379	77,648	532	6,283	358,899	71.7	141,672	124,741	92,373
	5 mos.	140,471	198,228	338,700	19,519	6,715	1,550	88,816	44.8	109,412	94,400	17,668
	5 mos.	695,958	907,278	1,603,236	98,774	334,546	16,826	483,215	53.3	424,063	351,095	80,802
Port Reading	19	695,958	907,278	1,603,236	98,774	334,546	16,826	483,215	53.3	424,063	351,095	80,802
Richmond, Fredericksburg & Potomac	117	598,667	256,693	855,360	166,149	341,558	34,198	704,831	68.9	317,557	272,036	197,297
	5 mos.	2,230,712	1,813,136	4,043,848	845,431	1,711,198	177,900	3,435,624	69.6	1,500,492	1,223,655	923,969
	5 mos.	356,402	90,041	446,443	104,779	201,649	17,299	446,293	76.3	138,779	110,695	111,968
	5 mos.	1,578,572	566,739	2,145,311	514,163	1,086,415	77,730	2,269,999	80.9	537,376	400,092	314,696
Rutland	413	1,578,572	566,739	2,145,311	514,163	1,086,415	77,730	2,269,999	80.9	537,376	400,092	314,696
St. Louis-San Francisco	5,074	5,099,582	970,822	6,070,404	1,347,049	2,314,534	230,192	4,812,006	72.7	1,802,732	1,461,179	1,492,354
	5 mos.	24,833,786	4,652,607	29,486,393	8,810,361	11,186,378	1,164,326	22,967,690	72.0	8,899,700	7,098,712	7,327,006
	5 mos.	77,548	12,092	89,640	34,165	51,123	5,064	117,161	114.9	-15,206	-19,296	-30,204
	5 mos.	374,848	60,847	435,695	105,866	255,673	26,985	475,864	95.8	-20,788	130	-44,148
Ft. Worth & Rio Grande	233	374,848	60,847	435,695	105,866	255,673	26,985	475,864	95.8	-20,788	130	-44,148
St. Louis, San Francisco & Texas	137	104,636	11,793	116,429	47,807	52,828	7,031	139,044	114.4	-17,501	-20,151	-47,107
	5 mos.	597,900	56,250	654,150	92,953	24,828	35,211	545,631	80.6	118,228	118,228	83,661
	5 mos.	1,245,917	78,938	1,324,855	187,854	376,874	64,848	952,167	68.7	433,002	388,832	258,944
	5 mos.	6,646,755	406,126	7,052,881	1,001,377	1,965,351	321,729	4,770,446	64.8	2,610,597	2,279,283	1,679,043
St. Louis Southwestern	940	6,646,755	406,126	7,052,881	1,001,377	1,965,351	321,729	4,770,446	64.8	2,610,597	2,279,283	1,679,043
St. Louis Southwestern of Texas	807	435,731	41,729	477,460	141,836	319,447	33,896	580,425	109.3	-49,174	-76,963	-45,260
	5 mos.	2,346,931	208,314	2,555,245	611,847	1,246,845	170,218	3,106,914	110.6	-297,102	-43,629	-261,621
	5 mos.	92,190	9,238	101,428	16,293	3,330	7,982	76,841	73.0	28,375	22,683	41,964
	5 mos.	415,556	101,820	517,376	88,470	153,674	44,176	400,271	74.6	136,031	108,232	181,170
San Diego & Arizona	156	415,556	101,820	517,376	88,470	153,674	44,176	400,271	74.6	136,031	108,232	181,170
Seaboard Air Line	4,499	3,804,778	540,083	4,344,861	799,151	1,799,213	181,665	3,544,420	74.3	1,226,957	905,462	877,363
	5 mos.	19,138,795	4,122,516	23,261,311	5,267,553	12,586,824	948,732	18,166,453	73.3	6,866,369	5,259,458	4,710,813

Revenues and Expenses of Railways

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1928—Continued

Name of road	Av. mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from operation.	Operating income (or loss).	Net operating income (or loss).	Net operating income, 1927.
		Total	Freight.	Passenger, (inc. misc.)	Total	Traffic.	Trans- portation.					
Southern Ry.	6,770	\$9,244,025	\$1,862,137	\$12,070,203	\$1,862,261	\$2,344,598	\$4,064,598	72.6	\$3,309,078	\$2,511,582	\$2,525,600	\$2,598,907
Alabama Great Southern	6,771	4,687,162	979,393	58,998,347	8,597,385	10,800,851	19,966,455	72.6	16,190,315	12,379,868	11,088,648	11,848,263
May	314	159,542	31,552	2,996,665	167,146	21,252	299,665	69.2	1,270,316	201,266	235,726	206,906
May	314	3,152,158	687,293	4,113,065	690,062	830,433	1,269,855	74.2	1,061,248	772,383	905,258	943,410
Cinn., New Orleans & Texas Pac.	338	1,558,871	237,127	1,901,530	279,621	43,934	544,289	68.0	607,648	485,903	450,712	484,117
May	338	6,937,694	1,407,581	8,826,221	1,362,850	209,192	2,557,272	70.7	2,587,813	2,067,827	1,954,880	1,894,313
Georgia Southern & Florida	397	250,260	89,339	369,688	83,386	12,893	12,077	97.7	8,619	—14,141	—17,316	—41,763
May	400	1,095,862	673,015	1,954,191	387,910	58,379	822,063	91.2	1,761,494	58,796	46,655	—91,242
New Orleans & Northeastern	204	373,153	63,721	470,941	66,591	11,886	129,581	65.9	160,479	117,657	84,825	104,965
May	204	1,793,613	339,113	2,867,023	306,862	63,306	679,275	68.2	727,397	505,913	349,538	390,820
Northern Alabama	110	81,825	32,953	100,833	20,913	3,159	35,472	68.8	28,322	22,416	635	15,581
May	110	412,564	129,533	572,097	113,220	10,397	169,435	70.2	136,668	105,606	5,858	103,890
Southern Pacific	8,909	13,363,017	3,123,965	18,250,633	2,466,410	3,028,824	5,998,777	69.9	5,485,170	4,289,222	3,690,412	3,370,498
May	8,911	59,854,681	15,467,326	83,035,626	11,013,426	14,730,714	27,857,767	72.8	22,547,582	15,912,662	14,788,130	13,486,170
So. Pacific Steamship Lines	May	818,851	48,020	974,102	21,069	17,151	609,462	89.3	64,059	102,097	105,006	89,415
May	May	3,753,696	226,852	4,611,402	86,365	966,505	1,014,166	94.1	271,250	258,658	262,809	504,529
Texas & New Orleans	4,728	4,286,392	844,557	5,582,083	1,096,165	1,176,117	1,019,308	84.8	846,822	528,964	501,140	348,169
May	4,727	20,771,142	4,399,542	27,585,658	4,781,516	5,702,117	894,780	84.0	4,367,224	2,816,456	1,803,857	1,206,294
Spokane, Portland & Seattle	554	587,794	83,782	734,835	1,395,617	103,894	21,806	64.1	263,589	179,778	171,850	191,236
May	554	2,654,463	412,643	3,364,804	503,982	517,018	547,573	66.5	1,128,181	709,552	676,310	669,983
Tennessee Central	296	245,341	19,912	277,280	53,582	40,783	99,594	78.7	59,048	54,173	33,883	48,835
May	296	1,201,598	98,564	1,365,061	258,200	208,741	44,334	78.3	296,761	267,202	171,729	184,322
Terminal Railroad Assn. of St. L.	55	.....	.....	1,086,687	180,493	92,281	4,249	69.8	327,880	225,769	299,060	275,136
May	55	.....	.....	5,518,577	812,010	457,472	11,815	67.6	1,789,262	1,276,908	1,698,001	1,763,829
Texas Mexican	162	126,150	3,244	135,767	21,999	18,391	43,875	69.1	41,960	36,958	25,080	2,111
May	162	502,718	20,124	555,417	83,897	77,634	384,490	69.2	170,527	145,743	110,369	29,617
Toledo, Peoria & Western	239	171,094	1,417	179,678	21,663	10,890	54,890	81.1	34,004	33,004	17,957	30,187
May	239	766,939	12,266	813,416	210,700	94,244	54,463	83.8	131,411	116,349	56,004	—28,025
Toledo Terminal	28	.....	.....	137,509	13,217	16,601	49,787	62.3	51,791	34,291	63,119	54,094
May	28	.....	.....	603,397	49,427	79,346	2,766	65.7	207,192	119,695	260,138	281,746
Trinity & Brazos Valley	367	.....	.....	161,087	45,331	31,270	7,404	99.6	660	—6,965	—28,839	—38,573
May	367	853,290	34,621	922,901	166,371	26,288	414,293	92.3	71,105	33,132	—95,083	—78,159
Utah & Delaware	128	63,228	6,139	111,434	18,860	16,365	49,073	81.2	20,908	15,158	9,486	2,992
May	128	182,646	19,375	378,543	69,938	78,629	201,139	100.5	2,014	—30,764	—48,165	—59,278
Union Railroad of Penna.	45	.....	.....	895,135	104,042	179,404	372,746	87.2	225,843	186,343	295,069	223,676
May	45	.....	.....	3,675,129	411,417	882,307	1,842,834	87.2	471,304	366,285	791,721	646,899
Union Pacific	3,713	7,257,075	1,259,342	9,391,229	1,380,416	2,042,921	2,499,625	71.4	2,685,706	1,984,063	1,710,144	1,143,906
May	3,711	33,672,479	5,535,398	42,829,619	4,998,571	9,441,139	16,797,790	69.4	13,126,414	9,725,063	8,600,354	6,167,426
Oregon Short Line	2,539	2,451,584	284,286	2,948,832	661,657	503,960	838,982	76.9	681,955	415,792	334,383	84,484
May	2,539	11,978,449	1,423,302	14,383,791	2,512,394	2,623,938	2,765,589	73.1	3,864,782	2,529,704	2,094,560	1,599,200
Oregon-Wash., R. R. & Nav. Co.	2,343	1,824,192	255,986	2,281,432	523,713	403,603	85,734	88.8	254,511	66,543	—66,960	—116,031
May	2,343	8,663,772	1,285,292	10,998,952	2,305,484	1,973,003	4,279,291	88.4	1,271,886	312,727	—368,207	—90,502
Los Angeles & Salt Lake	1,209	1,364,967	371,084	1,935,457	422,351	358,861	94,582	86.5	262,129	124,674	25,516	20,162
May	1,209	6,884,061	1,548,481	9,342,533	1,844,098	1,893,120	399,595	86.5	1,265,466	584,075	81,993	302,284
St. Joseph & Grand Island	258	315,650	10,702	349,008	75,817	36,904	107,945	68.6	109,708	92,743	73,434	8,278
May	258	1,471,225	57,363	1,618,935	231,456	192,236	529,476	64.8	570,388	456,659	373,113	120,617
Utah	111	89,279	36	89,362	21,237	39,226	21,867	99.0	864	—4,123	—12,545	20,464
May	111	692,989	108	694,616	112,090	148,984	29,420	71.7	196,239	159,714	113,687	190,085
Virginian	545	1,337,515	30,752	1,445,944	235,900	321,898	317,296	63.7	324,164	392,141	412,469	703,295
May	545	7,023,257	185,099	7,666,585	961,708	1,666,389	1,688,321	59.5	3,104,840	2,386,602	2,351,620	4,408,058
Wabash	2,524	23,338,379	5,733,077	28,071,506	3,604,179	4,939,362	11,011,175	77.0	6,720,286	5,439,100	3,895,238	3,482,752
May	2,524	23,338,379	5,733,077	28,071,506	3,604,179	4,939,362	11,011,175	77.0	6,720,286	5,439,100	3,895,238	3,482,752
Ann Arbor	293	458,585	14,648	488,439	59,503	100,209	14,386	73.9	359,886	102,353	79,188	76,533
May	293	2,221,996	88,647	2,378,124	235,791	474,692	68,267	74.9	595,875	472,837	341,395	359,950
Western Maryland	878	1,430,889	28,306	1,509,126	290,331	267,727	47,701	70.7	442,594	370,328	370,328	443,124
May	841	7,334,408	153,520	7,723,771	1,182,959	1,512,048	209,569	69.9	2,323,243	1,898,243	2,019,528	2,335,627
Western Pacific	1,050	1,068,316	122,527	1,297,095	300,586	270,340	68,802	99.5	1,291,042	—85,323	—36,934	25,682
May	1,050	4,897,286	499,701	5,692,931	1,393,403	1,251,948	276,671	96.0	226,581	—25,118	—7,916	339,310
Wheeling & Lake Erie	511	1,698,829	24,163	1,757,133	240,934	36,371	94,848	67.2	2,098,379	1,458,142	1,441,586	283,402
May	511	6,901,281	123,618	7,443,934	913,645	1,795,665	2,233,857	71.2	2,098,379	1,458,142	1,441,586	1,505,569
Wichita Falls & Southern	168	78,928	2,696	86,332	13,091	10,082	24,952	63.04	31,911	26,938	24,501	19,617
May	168	360,674	12,634	396,267	78,705	59,424	131,981	76.47	93,227	67,483	54,337	107,680

News of the Week

(Continued from page 77)

it is most needed and most economical. Travel by train likewise enables them to save considerable time. By using local sleeping cars it is possible to cover long distances in perfect comfort at night."

British Railway Revenues Drop

Combined gross operating revenues of the four group railway companies of Great Britain were £79,757,000 or £4,159,000 (\$20,254,000) less during the first 24 weeks of 1928 than were the revenues reported by these roads for the corresponding period of 1927. Declines from the 1927 figures were reported in both passenger and freight receipts by each of the four roads. Freight receipts, however, showed greater declines than those for passenger traffic and accounted for £3,591,000 (\$17,488,000) or 84 per cent of the total decrease. The decline in passenger receipts was £568,000.

The comparative loss of freight revenue was greatest in the case of the Southern where the drop was £284,000 or 12.3 per cent under 1927. Next came the Great Western with freight revenues of 9.0 per cent less than during the first 24 weeks of 1927, while the London, Midland & Scottish reported a freight revenue decline of 8.6 from its gross freight revenues during the corresponding period of 1927. The decrease was £1,022,000 in the case of the London & North Eastern or 6.1 per cent under the 1927 figure. Passenger revenue declines were considerably less, ranging from 0.6 per cent on the Southern to 3.9 per cent on the London & North Eastern.

The effect of these revenue decreases on net earnings cannot be determined at this time since the net earnings figures are published only with the annual reports. The response of the market, however, has had the effect of bringing about substantial declines, from their 1928 high points, in the quotations of securities of these four companies.

Orient Increases Pay of Trainmen

The wage dispute between the Kansas City, Mexico & Orient and its train service employees was settled late in June when the company granted an increase in the rates of pay of conductors, brakemen, enginemen, firemen, engine foremen, yard helpers, outside hostlers and outside hostler helpers. The increases follow, in general, the recommendations of the emergency board appointed by President Coolidge, and is retroactive to April 16. With some exceptions train service wage rates on the Orient are still about 15 per cent below the general level in Western territory.

The new rates of pay per 100 miles for conductors vary for different classes of service from \$6.48 to \$4.33 and for brakemen they vary from \$5.04 to \$2.99. Enginemen will now receive from \$7.56 to \$6.04 per 100 miles, depending upon the weight on drivers, while the rates of pay per 100 miles for firemen will range from \$5.60 to \$4.52. Under the new rates engine foremen will be paid \$6.68

per day, yard helpers, \$6.12 per day; outside hostlers, \$5.72 per day, and outside hostler helpers, \$4.52 per day.

Following out the recommendation of the emergency board the Orient plans to become a member of one of the train service adjustment boards which has jurisdiction in its territory though it has not yet been decided which one it shall be. The board also found the threatened strike to be unjustified and the railroad, because of its financial position, to be unable to pay standard rates of wages. Early in April the company offered increases less than the amounts asked by the brotherhoods and these were rejected. The company expressed a willingness to arbitrate the dispute during mediation. This the brotherhoods refused to do and to prevent a strike an emergency board was appointed.

G. N. Storekeepers' Meeting

The fifth annual meeting of the Great Northern Stores Association was held in St. Cloud, Minn., on June 21, 22 and 23. The meeting was conducted by Robert Steel, district storekeeper, Great Falls, Mont., assisted by G. H. Abendschein and E. C. Carlson. The attendance included storekeepers from all points on the system, also chief clerks, clerks and foremen from nearby stores. Several officers from other departments also attended.

In addition to the reports of committees on Unification of Accounting for A.F.E. Work, Controlling Line Stocks and Using Master Stock Books, the following papers were presented and discussed: Between Two Fires, Service and Stock Balance; Scrap Material,—How Received and Handled; Some Things We Do Not Do; Advantages of Steel Shelving; Office Equipment; "Practical Stunts" appearing in railway magazines; Delivery and Handling of Bridge and Building Material, including Treated Timbers; Ordering and Stocking Material for Motor Buses; Delivery of Material to Users; Card Index, Pricing and Record; What Has Been Accomplished by Co-operation; Most Efficient Method of Handling Lumber in a Large Yard; Material Store Expense; Care and Check of Material at Outside Store Points; Store Department Records, changes in present practices; New Form of Shop Labor Distribution, Advantages and Disadvantages; Our Prospective; Care and Handling of Material during Heavy Snows; More on Budget System of Purchasing Material; Store Facilities at large store.

At the concluding session, the following officers were elected for the coming year: G. B. Hoult, district storekeeper, Devils Lake, N. D., chairman; T. J. Clancy, district storekeeper, Havre, Mont., and F. Rafson, storekeeper, Skykomish, Wash.

The Canadian Roads in May

Net earnings of the Canadian Pacific for May were the largest shown by the month of May in the last seven years and show an increase of \$1,000,000 for the month and for the first five months of this year net earnings of that road are \$3,000,000 ahead.

Gross earnings are shown at the highest level for any month, since October, 1927, and last month's gross of \$17,807,974 constituted a record, it being the largest gross for May in the history of the company, being more than three millions greater than for May, 1927.

The statement of earnings and expenses for the month of May, 1928, and for the first five months of the year, with comparison, follows:

	May 1928	1927	Increase
Gross	\$17,807,974	\$15,214,360	\$2,593,613
Expenses	14,752,255	13,182,730	1,569,525
Net	\$3,055,718	\$2,031,630	\$1,024,088
5 Mths.	1928	1927	Increase
Gross	\$80,204,864	\$73,571,659	\$6,633,204
Expenses	66,630,310	62,823,812	3,806,498
Net	\$13,574,553	\$10,747,847	\$2,826,706

The Canadian National for May also shows increases in gross and net earnings.

In May the gross earnings of the National System amounted to \$21,751,337 in comparison with \$20,432,357 in May, 1927, an increase in favor of May, 1928 of \$1,318,969, equivalent to 6.46 per cent.

The net earnings in May were \$3,655,436 and in May, 1927, they were \$3,342,639, an increase during the month of May of the current year of \$312,796, equal to 9.36 per cent. As a result the ratio of expenses to gross earnings in May, 1928 was reduced to 83.19 per cent.

In the five month period of 1928 which includes May, the gross earnings of the National System reached a total of \$101,180,759, while during the similar five month period of 1927 the gross earnings amounted to \$94,340,092, an increase in the first five months of the present year of \$6,840,666, or 7.25 per cent.

For the five month period of this year the official statement records net earnings on the Canadian National of \$17,063,716, in comparison with \$14,355,621 during the similar five month period of 1927, an increase in favor of the current year of \$2,708,095, equivalent to 18.86 per cent.

During the five months under review the operating ratio was reduced to 83.14 per cent from 84.78 per cent during the first five months of 1927.

Reconsideration of P. & W. V. Decision Asked

The Baltimore & Ohio, the Pennsylvania and the New York, Chicago & St. Louis have petitioned the Interstate Commerce Commission for a reargument and reconsideration of the recent decision by which the commission authorized the Pittsburgh & West Virginia to build an extension from Cochran's Mill, near Pittsburgh, to Connellsville, Pa., 38 miles. They assert that there is no necessity for the construction of the line and that the capital expenditure could be avoided by the proper co-operative use of existing lines.

It is also requested that the case be decided by the votes of all eleven members of the commission and it is pointed out that the decision was rendered by five votes to four and that authorization would have been withheld if the vote of

Commissioner Meyer had been counted, as he said that if he had been present he would have voted against the decision. Commissioner Farrell did not participate. The suggestions of the P. & W. V. that the new line is necessary and desirable as part of a new through route connecting the Wheeling & Lake Erie with the Western Maryland necessarily raises issues, the Baltimore & Ohio says in its petition, introducing the problem of the consolidation of the eastern railroads which cannot be satisfactorily determined in the present proceeding. The question is raised as to whether the creation of such an independent new route may not act as an impediment to the proper carrying out of the governmental policy of consolidation by preventing or making more difficult the creation of a limited number of systems in the eastern district which would possess that equality of opportunity which is sought to be accomplished by Section 5 of the interstate commerce act.

The Pittsburgh & West Virginia has notified the commission that it has already begun construction work under its authorization.

C. F. Taplin, general counsel of the Pittsburgh & West Virginia, has notified the Interstate Commerce Commission through C. D. Mahaffie, director of its Bureau of Finance, that his company desires an early hearing on its application filed nearly a year ago for authority to acquire control of the Wheeling & Lake Erie, of which the P. & W. V. is a minority stockholder. The application was filed after the Baltimore & Ohio, New York Central and New York, Chicago & St. Louis had asked the commission for authority for officers and directors of their companies to serve also as directors of the Wheeling company, in which they had acquired a majority stock control. The latter applications were recently denied by the commission and Mr. Taplin said that now that that case has been disposed of early consideration was desired of his company's application. He also said he had been informed that the Nickel Plate would ask the commission for authority to acquire control of the Pittsburgh & West Virginia.

J. J. Esch to Practice Law

J. J. Esch, who recently retired as a member of the Interstate Commerce Commission, has become associated with a new law firm, Esch, Kerr, Newton & Shipe, for the general practice of law before the departments and commissions at Washington, D. C. Associated with him will be Charles Kerr, former judge of the circuit court at Lexington, Ky., and of the United States court at Panama; A. K. Shipe, former special assistant to the attorney general of the United States; Cleveland A. Newton, general counsel of the Mississippi Valley Waterways Association, Marion C. Early, and Robert W. Woolley, also a former member of the Interstate Commerce Commission.

Preliminary Abstract of Statistics of Common Carriers

The Interstate Commerce Commission on July 10 made public its preliminary abstract of statistics of common carriers

for the year ended December 31, 1927, compiled from the annual reports of steam railways, the express companies and the Pullman Company, and including some details not available from the monthly or special reports.

A table showing the investment in road and equipment of the operating, lessor and proprietary companies as of the end of the year gives a grand total of \$24,463,367,010, an increase of \$592,242,290 over that for the previous year. This includes \$18,999,686,638 for Class I roads, \$4,904,816,691 for lessors to Class I companies, and \$902,765,693 for proprietary companies. The total number of stock-

holders is given as 756,960, as compared with 768,315 for the previous year.

Class I roads, excluding switching and terminal companies, declared dividends during the year amounting to \$497,933,741, as compared with \$405,223,963 as shown in the report for the previous year. The average rate on dividend-yielding stock was 8.87 per cent, as compared with 7.51 per cent shown in the previous year's report. For the Eastern district the rate was 11.62 per cent, as compared with 7.61 the year before; for the Southern district, 7.8 per cent as compared with 8.75, and for the Western district it was 6.87 per cent as compared with 6.90.

Traffic

The consolidated railroad ticket office at Des Moines, Iowa, will be discontinued on July 31, the date on which the lease of the office at Fourth and Walnut streets expires. In preparation for the closing, six of the seven railroads in the office have established or announced plans for separate ticket offices. Those which have established separate offices include the Chicago, Milwaukee, St. Paul & Pacific; the Wabash; the Chicago Great Western; the Chicago & North Western; the Chicago, Rock Island & Pacific; and the Minneapolis & St. Louis.

The Illinois Commerce Commission, on July 2, suspended, until October 27, the reductions in the switching rates proposed by the Terminal Railroad Association of St. Louis, and ordered the case to hearing. The St. Louis Shippers' Conference Association in applying for the suspension charged the rate cut was not designed to benefit shippers but to throttle competition. It was pointed out that the principal reductions will apply to traffic on the east side of the Mississippi river where the Alton & Southern competes with the Terminal. The petition declares that if the proposed reductions were made effective, the Alton & Southern would be forced to sell out to the Terminal and eventually rates would be increased. The Interstate Commerce Commission had declined to suspend the new tariffs of the Terminal.

The Union Pacific in conjunction with the University of Idaho is to operate a dairy demonstration train on a 13-day tour of southern Idaho farming regions. The special will make 36 stops of 3 hours each through the Snake River Valley and the southeastern corner of the state.

Bananas arriving in New Orleans by steamers from tropical ports now average about 2,000,000 bunches a month; and the month of June, in which the receipts were 2,708,767 bunches, shows the highest record in the history of the port. The number of steamships coming in with bananas in June was 83, and 31 of these brought fruit exclusively. A bunch of bananas averages 180, making the total for June 487,577,520 bananas or four apiece for every man, woman and child in the United States.

Freight rates to and from North Carolina and other southeastern states are unfair as compared with freight rates to and from places north of the Norfolk & Western Railway, according to a report made to the Governor of North Carolina by an advisory commission, of which the chairman is Albert G. Myers, of Gastonia. The writer of this report holds that the present freight-rate situation amounts to a crisis, and a grave emergency in North Carolina's commerce and he lays the blame on the railroads and the Interstate Commerce Commission, jointly; though it is asserted that the recent tendency of the decisions of the I. C. C. leaves the railways no choice but to adopt rates higher than those in northern territory. The report says, however, that the Interstate Commerce Commission's policy will, if continued and applied to all commodities, tend to give the northern states almost a monopoly *except* in activities incident to mining, herding, farming and timbering.

St. Louis Package Car Service

The monthly report of package car service from St. Louis, Mo., to various points in the United States for April, 1928 shows that 94.20 per cent of all package cars moved by all lines serving St. Louis to points in the United States and Mexico, arrived and were ready for delivery at the freight house at destination on time. The lines west of the Mississippi made 97.5 per cent and those east of the Mississippi, 90.6 per cent of the deliveries on time. During this month, daily package cars were forwarded from St. Louis to 437 principal break-bulk points in the United States and Mexico and 100 per cent on time service was rendered to 332 of these points.

In general the schedules under which the package cars move provide for next morning delivery to points within a radius of substantially 300 miles from St. Louis, second day delivery within 500 miles, third day within 700 miles, fourth day within 1,000 miles, fifth day within 1,500 miles and eighth day within 2,000 miles.

Midwest Shippers' Board

That the level of agricultural and industrial activities in general in the ter-

ritory of the Midwest Regional Advisory Board will be 25 per cent higher in the next three months than in the corresponding quarter a year ago, was indicated in the reports of commodity committees at the sixteenth regular meeting of the board at Milwaukee, Wis., on July 11. It is estimated that the movement of flour, meal and other mill products will show a 10 per cent increase. The movement of coal and coke is expected to be three times as large as in the third quarter of 1927, the coal movement a year ago having been affected by a cessation of operations due to the termination of the Jacksonville agreement.

An increase of 20 per cent is anticipated in the movement of clay, gravel, sand and stone. Cement and petroleum and its products will show an increase of 10 per cent. Other expected increases are lumber and forest products 7 per cent, lime and plaster, 7 per cent, sugar and syrup, 2 per cent, castings, machinery and boilers, 5 per cent, agricultural implements, 15 per cent paper, printed matter and books, 2 per cent, chemicals, 6 per cent, and canned goods, 5 per cent.

Decreased movement was forecast for grain, hay, fresh fruits and vegetables, live stock, ore, brick and clay products, and fertilizers. The general conclusion as to the commodities represented, is that total freight loadings will increase from 1,108,000 to 1,379,000 or approximately 25 per cent.

Southwestern Rate Suspensions

The Interstate Commerce Commission, after suspending various parts of the tariffs filed by the railways to comply with its orders in the Consolidated Southwestern Cases, because of protests, on July 5 announced a further postponement of the effective date of the orders dated April 5, 1927, to July 14.

Following its action on June 30 and July 3 the commission on July 6 also passed upon additional requests for suspension, ordering the suspension of the cancellation of exceptions to the classification applicable to empty packages, returned, consisting of cylinders or drums for liquids and gases, cement bags, beverage packages, cable and wire rope reels and others.

It voted not to suspend the cancellation of less than carload classification exceptions and commodity rates on other articles. It voted not to suspend the groupings of various points in the defined territories involving rates to and from Milwaukee, Wis., North Chicago, Ill., Independence, Mo., Grafton, Ill. and various other points. It voted not to suspend various changes in routing provided in the new tariffs. It voted not to suspend rates on canned goods, pickles, table sauces and similar articles.

It voted not to suspend rates on soap.

It voted not to suspend rates on articles ordinarily known as junk (scrap metals, old rubber, etc.) but ordered the suspension of the cancellation of existing commodity rates on cullet (broken glass).

It voted not to suspend rates on

furniture, beverages, glass bottles and jars, barrels, iron or steel drums, tin cans, log wagons, butter, eggs and poultry.

It ordered the suspension of the rates on sugar from Garden City, Kans., to points on the Mississippi River such as St. Louis; to Chicago; to point on the Missouri River such as Kansas City, St. Joseph and Omaha; and to points east of the Missouri River, in western trunk line territory.

It ordered the suspension of the new tariffs and supplements in so far as they have the effect of cancelling existing carload commodity rates applicable to or from Gulf ports on coastwise traffic.

Station Agencies in New Jersey Discontinued

The Public Utility Commissioners of New Jersey, on June 28, acting on petitions from the West Jersey & Seashore to be relieved of the expense of maintaining unprofitable stations, rendered decisions on applications dealing with 12 stations; and six of the petitions were granted and six denied.

At Ancora, where the freight business has fallen off, the board authorized the continuance of the station as a non-agency station, beginning August 1, next.

At Winslow Junction where there is practically no business except carload shipments from one plant, the agent will be taken off on August 1, and the freight business will be cared for by the Hamonton agency.

Marlton will become a non-agency station on August 1. This is on the Medford branch where passenger service was discontinued last September.

Irving Avenue, Finley and Palatine, having suffered serious losses of business, will become non-agency stations on August 1. Carload freight for Finley will be cared for at Bridgeton, and that for Palatine at Elmer.

At the following stations, where the applications for relief were denied, the board holds that the expense as compared with revenue, is not excessive: Maurice-town; Heislerville; Yorketown (this is a part-time agency), Linwood; Rio Grande, and Iona. At Iona, the business apparently consists mainly of passengers. The number using that station in a typical month was 2,183.

Trans-Missouri-Kansas Shippers' Board

Optimism as to grain crops, and general business and industrial activity featured addresses and committee reports at the meeting of the Trans-Missouri-Kansas Shippers' Advisory Board, held at the Lassen Hotel, Wichita, Kan., on June 20. Over 800 representatives, including every industry in Kansas, Oklahoma, Missouri, Arkansas and Illinois, together with railroad officers, were in attendance.

In the "Winter Wheat Belt" crop conditions are somewhat unusual. The area of the so-called soft winter wheat production extending from Missouri west and north of the Ohio river, has suffered very heavy abandonment, and present

prospects indicate only about half a crop as compared with last year. In the so-called hard winter wheat area, which includes the belt north from Texas to Montana, west of the Missouri river, there is a mixed situation. From the center of Kansas south, which is the area of heavy production, conditions are good and indicate a yield this season that may be greater than the heavy yield of two years ago.

As 32,776 combines are in use in the wheat fields of Kansas, Oklahoma and Texas, (compared with 14,149 in 1926) the crop is likely to tax the facilities of the railroads to the limit.

J. E. Gorman, president of the Chicago Rock Island & Pacific, addressed the assembly on "Railroad Transportation" and Colonel Paul Henderson, vice-president and general manager of the National Air Transport, Inc., spoke on "The Future of Airplane Transportation."

Commodities which are expected to show an increase in volume are grain, 58.2 per cent, agricultural implements, 6 per cent, automobiles, 27.8 per cent, cement, 9.7 per cent, dairy and poultry products, 2 per cent; fresh fruits and vegetables, 42 per cent; grain products, 23 per cent; iron and steel, 5 per cent; lumber and forest products, 6 per cent; ore, 20 per cent; petroleum 5 per cent; and potatoes 17 per cent. Those showing decreases include clay products, 17 per cent; coke, 12.8 per cent; lime, plaster and gypsum, 20 per cent; packing house products, 4 per cent; salt 15 per roads on June 1 had 7,161 serviceable cent; and sand, stone and gravel, 19 per cent.

I. C. C. Seeks to Avoid Delays in Suspension Cases

The Interstate Commerce Commission has issued a statement making the following suggestions as to the exercise of its powers to suspend proposed rates under section 15 (7) of the interstate commerce act as amended.

"The statutory maximum period of suspension is seven calendar months beyond the time when the rate would otherwise go into effect. It is therefore important that in such proceedings there be no unnecessary delay.

"Before filing changes in rates the carriers should have considered the underlying reasons and effects of their action so thoroughly as to be prepared, if the changes are protested, immediately to present in full their defense. They should also send with each schedule containing increased rates, a statement of the changes and the reasons therefor, and a similar statement with each schedule containing reduced rates which there is reason to believe may be protested.

"Suspension should not be requested unless protestant is sure that he understands the effect of the rates and that his request rests on good grounds. The request should state clearly and concisely the reasons therefor. The protestants should at the same time send direct to the carrier or the tariff issuing agent advice that request for suspension has been filed, and of the reasons therefor. The

request should be accompanied by a statement that the carrier or agent, naming them, has been so advised. If the carrier or tariff agent answers protestant's petition, a copy of such answer must be sent direct to the protestant at the same time that it is forwarded to the Commission.

"If protestant desires oral hearing by the Suspension Board, the request should so state and be filed at least 15 days prior to the effective date.

"The Commission must determine its action upon a request for suspension in the light of understanding of the situation. In order that opportunity may be had for such understanding, the request should be filed as far in advance of the effective date of the rate as is practicable and not less than 10 days before that date. See Rule XIX of the Rules of Practice. It will be the policy of the Commission to afford carriers an opportunity to answer or explain allegations or questions raised in a request for suspension, but the carriers must give immediate attention to such matters and forward at once their representations. If the request is not presented within the time mentioned, ordinarily it will not be favorably acted upon. If the carriers do not promptly forward data which they desire to have considered in answer to a request for suspension, they may expect that it will be unavailing. The purpose of the Commission is to avoid suspension except where the date of that action affords opportunity to publish notice of

such suspension before the effective date of the proposed rate."

Freight Traffic For Five Months

The volume of freight traffic handled by the Class I railroads in the first five months of 1928 amounted to 186,546,774,000 net ton-miles, according to a compilation by the Bureau of Railway Economics. This was a decrease of 8,980,341,000 net ton-miles, or 4.6 per cent, below that of the corresponding period last year. Railroads in the Eastern district reported a decrease of 8.9 per cent, compared with the same period in 1927, while the Southern district reported a decrease of 8.1 per cent. The Western district reported an increase of 3.5 per cent.

In May, the volume of freight handled amounted to 39,250,302,000 net ton-miles, a decrease of 867,597,000 net ton-miles, or 2.2 per cent, below that of May 1927. In the Eastern district there was a decrease of 4.3 per cent while the Southern district showed a decrease of 9.9 per cent. The Western district reported an increase of 4.3 per cent.

The daily average movement per freight car for May was 31.2 miles. This exceeded by one mile the best previous average for any May, which was attained in May, 1927, and was 1.4 miles greater than the average for May, 1926.

The average load per car in May was 26.3 tons, a decrease of six-tenths of a ton under the average for the same month last year and one-half a ton below that for May, 1926.

Equipment and Supplies

Locomotives

THE ALASKA RAILROAD is inquiring for one Mikado type locomotive.

THE ARGENTINE STATE RAILROADS contemplate buying about 60 locomotives.

THE DELAWARE & HUDSON is inquiring for one Decapod type locomotive.

THE UNION RAILROAD COMPANY is inquiring for two locomotive tenders of 7,000-gal. capacity.

THE DENKMANN LUMBER COMPANY has ordered one Mikado type locomotive from the American Locomotive Company.

THE MISSOURI-KANSAS-TEXAS has ordered one 33-ton locomotive crane from the American Hoist & Derrick Company.

THE COLOMBIA RAILWAY & NAVIGATION COMPANY (South America) has ordered one Consolidation type locomotive from the American Locomotive Company.

Freight Cars

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 10 air dump cars.

THE AMERICAN CYANAMID COMPANY, New York, is inquiring for 20 hopper cars.

THE PAULISTA RAILWAY (Brazil) has placed orders for 1,000 freight cars with builders in the United States.

THE ARGENTINE STATE RAILROADS divided an order equally between the Middletown Car Works and the American Car & Foundry Company, for 2,200 freight cars of various types and designs.

THE ERIE has ordered one air dump car of 30 cu. yd. capacity from the Clark Car Company and one air dump car of 27 cu. yd. capacity from the Differential Steel Car Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 250 gondola car bodies from the Ryan Car Company. Inquiry for this equipment was reported in the *Railway Age* of June 9.

THE BARRETT COMPANY has ordered 16 class 105 tank cars of 50,000 lb. capacity from the General American Tank Car Corporation. These cars are to be used for carrying anhydrous ammonia.

THE CITIES SERVICE COMPANY has ordered 2 tank cars with two compartments of 3,600 gal. capacity and 2 tank cars with two compartments of 4,500 gal. capacity, from the General American Tank Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of June 30.

Passenger Cars

THE OKLAHOMA RAILWAY COMPANY is inquiring for from one to three pairs of passenger motor trucks.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA is inquiring for four gas electric rail motor cars.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA is inquiring for 4 gas-electric rail motor cars.

Machinery and Tools

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for one 36-in. shaper.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for one 32-in. boring mill.

THE RAILROADS have placed orders for machine tools with the Niles-Bement-Pond Company, which are as follows:

A 20-ton, 5-ton accessory, 94 ft. 3½ in. span, electric traveling crane; a 10-ton, 3-ton accessory, 67 ft. 3½ in. span, crane; a 30-ton, 5-ton accessory, 47 ft. 2¾ in. span, crane; a No. 141 Ransom grinder; a 90-in. locomotive axle journal turning lathe; an Acme 2-in. four spindle nut tapping machine, and a No. 1 Victor nut facer.

Iron & Steel

THE CANADIAN PACIFIC has ordered 25,000 tons of rails from the Algoma Steel Corporation.

Signaling

THE MISSOURI-KANSAS-TEXAS has ordered from the Union Switch & Signal Company, a mechanical interlocking for Parsons, Kan.

THE CHESAPEAKE & OHIO has ordered from the Union Switch & Signal Company, a mechanical interlocking, 11 working levers, for WD cabin, Whitcomb, W. Va.

THE ELGIN, JOLIET & EASTERN has ordered from the General Railway Signal Company, material for use in extending automatic block signaling between Ivanhoe, Ind., and Cavannaugh.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered from the General Railway Signal Company color-light signals and other material for automatic block signal work at Schiller Park, Ill.

THE LONG ISLAND has ordered from the General Railway Signal Company, an electric interlocking, 37 working levers, to be installed at Winfield Junction, N. Y.

THE GRAND TRUNK has ordered from the Union Switch & Signal Company material for automatic block signaling on its line, double track, between Granger, Ind., and Battle Creek, Mich., 50 miles. The order includes 60 color-light signals and other material.

Supply Trade

J. E. Hahn, railroad sales engineer of the **Hazard Manufacturing Company** has resigned to become railroad sales engineer of the **Simplex Wire and Cable Company** with headquarters at Chicago.

Carl F. Weiblen, formerly manager at Cleveland, Ohio, for the **G. H. Williams Company**, Erie, Pa., has been appointed Chicago manager. Mr. Weiblen succeeds **R. B. Randall**, who has been appointed Pacific Coast manager for the **Link Belt Company**, with headquarters at San Francisco, Cal.

The firm of **Rank & Goodell**, 906 Merchants National Bank building, St. Paul, Minn., manufacturers agents, handling railway supplies, has been dissolved, and the business taken over by **George H. Goodell** and **Carl M. Hoppe** under the firm name of **Goodell & Hoppe**.

Manning, Maxwell & Moore, Inc., New York, has purchased the **American Schaeffer & Budenberg Corporation** of Brooklyn, N. Y., and Worcester, Mass., from **Ralph Jonas** and associates. The newly acquired company, founded in 1851, manufactures industrial instruments. The business of this company will be co-ordinated with that of the **Consolidated Ashcroft Hancock Company, Inc.**, manufacturer of valves, indicating and recording instruments, which is owned by **Manning, Maxwell & Moore**. The operation of the Brooklyn and Worcester factories of **American Schaeffer & Budenberg Corporation** will at once be taken over by **M. M. & M.**

Lewis Thomas has been appointed district sales manager at Chicago, for the **Q and C Company**. He received his engineering education at **Lehigh University**, and after several years on relocation and double track work with the **Pennsylvania System**, he engaged in various construction projects as resident

engineer on a plant for the **Crescent Portland Cement Company** near Pittsburgh, and on a duplex mill built for the **Bethlehem Steel Company**. He was later in the contracting business in the Northwest for five years. Following this he



Lewis Thomas

served with the **Interstate Commerce Commission** for four years, being senior civil engineer. Mr. Thomas began his service with **The Q and C Company** in 1920 as sales representative.

Obituary

Herbert Lloyd, chairman of the board of **Electric Storage Battery Company**, Philadelphia, Pa., died at his home in Bryn Mawr, on July 3, at the age of 67.

G. T. VanSchaick, president of the **Universal Railway Supply Company**, Chicago died on July 8 following an automobile accident near Eagle River, Wis.

Construction

BALTIMORE & OHIO.—A contract for excavation and masonry work in connection with the erection of two bridges at **Piedmont, Ohio**, has been awarded by this road to the **Vang Construction Company**, Cumberland, Md. A second contract for the construction of water treating plants at **Martinsburg** and **Miller, W. Va.**, was awarded to **Frainie Bros. & Haigley**, Baltimore, Md. These plants are expected to cost about \$30,000, while approximately \$52,000 is involved in the former contract.

BANGOR & AROOSTOOK.—This road plans changes in its wharf at **Searsport, Me.**, together with an extension of the warehouse on the wharf. The work which will be done by company forces is expected to cost approximately \$35,000.

BESSEMER & LAKE ERIE.—This company has awarded a contract to the **Miller Construction Company**, Punxsutawney, Pa., for concrete and excavation work in connection with the subway being built under the main tracks at **West Springfield, Pa.** The work will cost approximately \$33,933.

CHESAPEAKE & OHIO.—In connection with the establishment of the **Industrial Rayon Corporation** plant on the lines of this company near **Covington, Va.**, it was found necessary to construct a spur to the new plant with a bridge across the **Jackson river**. This bridge will consist of three 100-ft. deck spans and is estimated to cost \$80,000. **Boxley Brothers Company**, Orange, Va., have been awarded the contract for the sub-

structure while a contract for the superstructure has been awarded to the **Virginia Bridge and Iron Co.**, Roanoke, Va.

CLEVELAND UNION TERMINALS.—This company is receiving bids for the construction of two adjoining buildings to be known as the **Medical Art building** and **Garage and Transportation building** in connection with its new development at **Cleveland, Ohio**.

DELAWARE, LACKAWANNA & WESTERN.—Bids will be closed by this company on July 17 for substructure work in connection with a new station layout at **Lyndhurst, N. J.** This portion of the project is estimated to cost approximately \$25,000.

DETROIT, TOLEDO & IRONTON.—The **Interstate Commerce Commission** has authorized this company to construct a 9¼-mile line from a connection with its main line at **Cairo, Ohio**, southward to a connection with its line south of **Lima**. The new line will provide connections for a new yard which the company will construct. The line authorized is estimated to cost \$4,407,000 and the yard \$2,746,000.

DETROIT, TOLEDO & IRONTON.—A contract has been awarded to the **Walsh Construction Company**, Davenport, Iowa, for about 2,500,000 cu. yd. of grading on its new line between **Malinta, Ohio**, and **Durban, Mich.**

GRAND TRUNK WESTERN.—A contract has been awarded to the **Davis-Stuntz Company**, Detroit, Mich., for the construction of additions and alterations to the 25-stall enginehouse at **Elsdon, (Chicago), Ill.**

LEHIGH VALLEY.—This road has awarded a contract to the **Barney-Ahlers Construction Corporation**, New York, for the construction of a 10-story re-enforced concrete warehouse at **144th Street and Gerard Avenue, New York**.

MIAMI, Fla.—The **City of Miami, Fla.**, has applied to the **Interstate Commerce Commission** for a certificate authorizing the construction of an extension of the tracks serving the municipal harbor, 3,225 feet, to connect with the tracks of the **Seaboard Air Line**.

MISSOURI-KANSAS-TEXAS.—A contract for the construction of a brick combination freight and passenger station at **Dublin, Tex.**, has been let to **J. D. Stephens**, **Wichita Falls, Tex.**, at a cost of about \$40,000.

NEW YORK, CHICAGO & ST. LOUIS.—A contract has been awarded by this road to the **McClintic-Marshall Co.**, Boston, Mass., for work in connection with the erection of a bridge at **Cleveland, O.**

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—A contract has been let to **Morrison & Knudson**, Boise, Idaho, for the driving of a tunnel five hundred feet long at **Weatherby, Ore.**

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—A general contract for the construction of a shop building, an

apprentice school building, and repairs to a number of minor buildings at the Albina yards, Portland, Ore., has been let to Tranchell and Parelus, Portland, at a cost of about \$32,000.

Western Pacific Plans California Extensions

The Western Pacific has incorporated the Western Pacific California Railroad Company, a wholly owned subsidiary with capital of \$15,000,000, to build 174 miles of railroad in California, at approximate cost of \$13,500,000.

Plans provide for a 25-mile line from San Francisco to Redwood City, eventually to be connected with main line of the Western Pacific at Niles, giving direct all-rail access to San Francisco and serving an important industrial area. This line would cost \$3,700,000. A 138-mile ex-

tension would be built from Nile Garden south of Stockton on the main line to Kings River, south of Fresno, estimated to cost \$8,500,000 with ultimate projection of line to Bakers Field; also 7½-mile extension of Holland branch of the Sacramento Northern, now under construction, to Ryde in the Sacramento River delta area; also 3½-mile branch from Brack on the main line, north of Stockton into a grape-producing area.

A statement issued by company says:

"This projected development is in line with plan and policy adopted by the Western Pacific Railroad Company, a large interest in which property was acquired by Arthur Curtiss James of New York in 1926. The plan includes improvement of properties of the Western Pacific and its subsidiary and affiliated lines, also acquisition or construction of new lines for the purpose of increasing business."

Railway Finance

BONLEE & WESTERN.—Abandonment.—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to abandon its line from Bonlee to Bennett, N. C.

YAZOO & MISSISSIPPI VALLEY.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its Moores branch from Moores to Lamont, Miss., 4 miles

CENTRAL OF NEW JERSEY.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire the capital stock of the Hibernia Mine Railroad, a single-track line of 4.28 miles connecting the Hibernia mine, in Morris county, N. J., with a branch of the Central near Rockaway, N. J., which it has operated since 1891 under a lease which expires in 1930. Subject to approval it has acquired 1,707 of the 2,000 shares of the company at \$60 per share.

CONDON, KINZUA & SOUTHERN.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to take over and operate a line from Condon to Kinzua, Ore., 24 miles, built by the Kinzua Pine Mills Company and the Kinzua Lumber Company.

ILLINOIS CENTRAL.—Air Right Suit.—Judge Hugo Friend of the Circuit court at Chicago on July 6 entered a decree ordering the United States Trust Company, New York, to release for the development of air rights the property of this railroad just south of the Chicago river from a mortgage that was executed on August 10, 1874. At that time the entire railroad was conveyed to secure the mortgaged indebtedness of \$15,000,000. The Equitable Life Assurance Society, the New York Life Insurance Company and the Metropolitan Life Insurance Company are, with the United States Trust Company, owners of more than five-thirteenths of the \$12,999,000 of the bonds that are still outstanding and which do not fully mature until 1951.

While the Illinois Central is given authority to sell or lease the property for air-right development the proceeds of such sales or transfers, the decree provides, shall be paid to the trustee, the United States Trust Company, and applied to the purchase of other property which shall become subject to the mortgage for the further protection of the bondholders.

NEW YORK CENTRAL.—Suit on Air Rights.—This company has filed in United States District Court its answer to the bill of complaint in which the Phoenix Insurance Company, of Hartford, Conn., asks for an accounting under the lease by the N. Y. C. of the New York & Harlem. The plaintiff had alleged, among other things, that the N. Y. C. was using the property of the Harlem for purposes not contemplated or authorized in the lease of 1873, namely, the erection of buildings over the track levels and utilization of air rights for its own benefit.

Except for admissions of facts not in controversy, the answer enters a general denial to the contentions of the plaintiff and adds the following:

For a first and separate defence, this defendant alleges, upon information and belief, that the uses being made by this defendant of certain of the premises demised to its predecessor under said lease of April 1, 1873, complained of in the bill of complaint, are the same and similar to the uses thereof heretofore during the term of said lease made by this defendant and its predecessors; that for such uses and in connection therewith this defendant and its predecessors have expended many millions of dollars of their own funds upon the faith and reliance of right so to do; that said uses and expenditures and claim of right so to do have been open and well known and in full knowledge and acquiescence of the plaintiff and other stockholders of the Harlem company, and of the Harlem company who have not heretofore instituted proceedings at law or in equity in respect thereof; and that thereby and by their acquiescence therein for many years the plaintiff and other stockholders of the Harlem company are now estopped from the maintenance of the claim set out in the bill of complaint.

For a second and separate defence, this defendant repeats the allegations set forth in the preceding first defence and further alleges, upon information and belief, that the plaintiff is now barred by laches from maintaining the alleged cause of action set forth in the bill of complaint.

PENNSYLVANIA.—To Issue Stock to Employees.—This company has applied to the Interstate Commerce Commission

for authority to issue and sell to its officers and employees 350,000 shares of its capital stock (par value \$50) at a price of \$50 a share, payable in monthly installments of \$2 to \$5 a share, to be deducted from the pay of the subscriber. The plan provides that no payment in full will be accepted nor will subscribers be permitted to anticipate final payments. Interest at 6 per cent will be allowed on the payroll collections and credited toward the price of the stock and no dividends will be allowed until the stock is paid for in full. Subscriptions will be accepted for from one to ten shares. It is proposed to apply the proceeds to the reimbursement of the treasury for expenditures for capital purposes.

SOUTHERN PACIFIC.—Abandonment.—The El Paso & Southwestern and the Southern Pacific, lessee, have applied to the Interstate Commerce Commission for authority to abandon the line from Deming to Hermanas, N. M., 30 miles, on the ground that there is no longer sufficient traffic to justify it and that parallel lines of the Southern Pacific are adequate to handle the business that may be offered.

VIRGINIAN.—Final Valuation.—The Interstate Commerce Commission has issued a final valuation report finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of 1916 to be \$50,400,000. The value of the property used but not owned was placed at \$3,226,045 and that of the property owned by the Virginian Terminal, leased to the Virginian, at \$2,865,000. The original cost of the Virginian and Virginian Terminal, as of date of valuation, as ascertained from their records, is stated to have been \$53,877,869, and the cost of reproduction new was estimated at \$51,702,678 for the Virginian and \$2,022,555 for the Terminal. The cost of reproduction less depreciation was estimated at \$45,313,277 for the Virginian and \$1,729,970 for the Terminal. The companies claimed a minimum value for the two companies of \$75,000,000, exclusive of working capital, including an item of \$8,000,000 for development cost.

Average Prices of Stocks and of Bonds

	July 10	Last week	Last year
Average price of 20 representative railway stocks.	119.04	118.69	115.39
Average price of 20 representative railway bonds.	94.28	94.21	93.63

Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of the respective valuation dates, as follows:

Virginian	\$50,400,000	1916
Duluth, Winnipeg & Pacific	4,216,136	1919
Northwestern of South Carolina	727,800	1919

Dividends Declared

Connecticut & Passumpsic Rivers.—Preferred, 3 per cent, payable August 1 to holders of record July 1.

Massachusetts Valley.—3 per cent, payable August 1 to holders of record July 1.

Officers

Executive

C. J. Cainon, general manager of the Toledo, Angola & Western, with headquarters at Toledo, Ohio, has in addition been appointed assistant to the president of the Fort Smith & Western.

Clifford H. Trembly, who has been promoted to assistant to the vice-president and director of traffic of the Great Northern, with headquarters at St. Paul, Minn., was born at Horseheads, N. Y., on October 22, 1871. He entered railway service on December 17, 1889, in the office of the car accountant of the Great Northern. In 1895 Mr. Trembly was transferred to the traffic department of the Great Northern where he has



Clifford H. Trembly

been for nearly 33 years. Since 1913 he has served in the office of the vice-president, the president, the federal manager and the vice-president and director of traffic. His promotion to assistant to the vice-president and director of traffic became effective on July 1. For a short time Mr. Trembly was connected with the United States Government in river and harbor work.

John F. Deasy, who has been appointed assistant vice-president in charge of operation on the Pennsylvania, with headquarters at Philadelphia, Pa., was born on March 25, 1882, at Hammerton, Pa. He was educated in the public schools, Philadelphia Textile School, and Brown Preparatory School, and entered railway service on June 10, 1901, as telegraph operator for the Pennsylvania, serving consecutively to September 13, 1907, as clerk and operator, and as clerk in the yards and stations. From August 7, 1908, to May 26, 1918, he served as acting extra agent of the Amboy division, acting terminal and shipping agent at South Amboy, extra agent and supervising agent on the Trenton division and assistant freight claim agent for the

same road. On the above mentioned date he was appointed superintendent of stations and transfers, lines east of Pittsburgh, and two years later he became assistant chief of transportation in charge of freight transportation. On



John F. Deasy

February 1, 1927, he was promoted to chief of freight transportation, serving in this capacity until his recent appointment to assistant vice-president in charge of operation. Mr. Deasy's entire railway service has been with the Pennsylvania.

Ross S. Marshall, who has been appointed vice-president of the Chesapeake & Ohio and the Hocking Valley, with headquarters at Richmond, Va., was born on March 15, 1880, at Rock Island, Ill. He entered railway service in 1897 as timekeeper and clerk for the Great Northern. He served as division accountant and chief clerk to the division engineer on the Chicago, Rock Island & Pacific from 1902 to 1905, when he went with the Panama as chief clerk to the general superintendent, also serving as local auditor. From 1907 to 1911 he was statistician to the general



Ross S. Marshall

superintendent, to the general manager and to the vice-president in charge of operations on the New York, New Haven & Hartford. From 1911 to 1914,

Mr. Marshall served as assistant to the vice-president in charge of operation and division superintendent on the Minneapolis & St. Louis. In 1914 he entered the service of the Seaboard Air Line as superintendent at Richmond, later becoming assistant general manager and general superintendent. During the United States Railroad Administration, Mr. Marshall served as statistician in the Division of Law and in June, 1922 he became assistant to the president of the Chesapeake & Ohio and the Hocking Valley, serving in this capacity until June 19, 1928, when he was appointed vice-president.

John C. Dice, who has been appointed assistant to the vice-president of the Chesapeake & Ohio and the Hocking Valley, with headquarters at Richmond, Va., was born on September 27, 1872, at Hamilton, Va. He was educated in private and high schools and the Randolph-Macon College, and entered the service of the Chesapeake & Ohio in 1915 as special agent, real estate department, reporting to the assistant to president. Three years later he was appointed



John C. Dice

ed assistant real estate agent reporting to the vice-president and in 1920 he was promoted to special assistant to the vice-president. Mr. Dice was appointed assistant to the vice-president in 1922, having charge of public relations literature and activities and supervision of the Employees' magazine, holding this position until June 19, when he was appointed assistant to the vice-president, reporting to the vice-president and general counsel, with continued supervision of public relations activities and other assigned duties.

E. L. King, superintendent of the Portland division of the Southern Pacific and vice-president of the Northern Pacific Terminal Company of Oregon, with headquarters at Portland, Ore., has been elected president of the latter company. **J. P. O'Brien**, general manager of the Oregon-Washington Railroad & Navigation Company, with headquarters at Portland, who was president of the Terminal Company, has been elected vice-president.

Financial, Legal and Accounting

C. C. Haire, engineer-auditor of the Illinois Central, with headquarters at Chicago, has been promoted to auditor of capital expenditures, with headquarters at the same point.

Robert Brennan, chief trial attorney for the Coast lines of the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Cal., has been promoted to attorney for the Coast lines, with headquarters at the same point, succeeding **E. W. Camp**, who has been promoted to special counsel for the Coast lines, with headquarters as before at Los Angeles.

A. L. Burford, general attorney of the Louisiana & Arkansas, with headquarters at Texarkana, Ark., has been promoted to general solicitor, with headquarters at the same point. **C. H. Moses**, secretary of the Graysonia, Nashville & Ashdown, with headquarters at Little Rock, Ark., has been in addition appointed general attorney of the Louisiana & Arkansas.

Operating

J. W. Corbett has been appointed trainmaster on the New Mexico division of the Southern Pacific, with headquarters at Tucumcari, N. M.

R. L. Davis, assistant to the president of the Kansas City, Mexico & Orient, with headquarters at Wichita, Kan., has been appointed superintendent, with headquarters at the same point.

E. W. Everett, assistant terminal engineer on the New York Central with headquarters at New York, has been appointed superintendent, with headquarters at the same point.

G. F. Worman, general yardmaster on the Fort Wayne division of the Pennsylvania, with headquarters at Fort Wayne, Ind., has been promoted to assistant trainmaster on the Columbus division, with headquarters at Richmond, Ind.

E. C. Twells, supervisor of stations and transfers of the Western region of the Pennsylvania, with headquarters at Chicago, has been promoted to superintendent of stations and transfers of the same region, with headquarters at the same point.

W. H. Crawford, general agent of the Quanah, Acme & Pacific, at Quanah, Tex., has been appointed superintendent of terminals, with headquarters at the same point. **W. L. Richardson** has been appointed general agent of the transportation and traffic departments to succeed Mr. Crawford.

E. S. McCormick has been appointed assistant trainmaster on the Pittsburgh division of the Pennsylvania, succeeding **J. W. Fike**, who has been transferred to

the Eastern division. **F. C. Wilkinson**, assistant superintendent on special duty, has been appointed assistant trainmaster on the Allegheny division.

J. B. Dawson, assistant division engineer of the Coast division of the Southern Pacific with headquarters at San Francisco, Cal., has been promoted to division engineer of the New Mexico division, with headquarters at El Paso, Tex., succeeding **H. E. Stansbury**, who has been transferred to the Rio Grande division, with headquarters at El Paso. Mr. Stansbury succeeds **F. L. Guy**, who has been transferred to the Coast division, with headquarters at San Francisco, to replace **E. C. Morrison**, who has been assigned to other duties.

Otto F. Ohlson, superintendent of the Lake Superior division of the Northern Pacific, with headquarters at Duluth, Minn., has resigned, effective August 1, to become general manager of the Alaska Railroad, with headquarters at Anchorage, Alaska. Mr. Ohlson will succeed **Newell W. Smith**, who has been general manager of the Alaska Railroad since 1925. In his new position, Mr. Ohlson will be in entire charge of the United States Government's Alaskan Railroad properties, with jurisdiction over the executive and operating departments under the Secretary of the Interior.

J. F. Patterson, who has been appointed general manager of the Long Island, with headquarters in New York, was born on January 8, 1871, at Alliance, O. He entered the service of the Penn-



J. F. Patterson

sylvania on October 1, 1884, as a messenger, serving consecutively, to October 1, 1899, as telegraph operator, train dispatcher at Fort Wayne, Ind., assistant trainmaster at Fort Wayne, and trainmaster. On April 1, 1914, he was appointed superintendent of the Peoria division of the Vandalia (part of the Pennsylvania) later serving in the same capacity on the Michigan division of the same road, and the Akron division, Erie & Ashtabula division, and the Eastern division of the Pennsylvania. On October 24, 1923, he was promoted to

general superintendent of the Eastern Ohio division, serving in that capacity until July 1, when he was appointed general manager of the Long Island.

R. H. Dwyer, superintendent of the northern Kansas division of the Missouri Pacific, with headquarters at Atchison, Kan., will retire from active railway service under the retirement plan of the company on August 1. **E. W. Stanley**, trainmaster of the Hoxie and Doniphan districts of the Arkansas division, with headquarters at Little Rock, Ark., has been promoted to assistant superintendent of the northern Kansas division and the Atchison district between Kansas City, Mo., and Atchison, including the Atchison terminal and the St. Joseph district of the Omaha division, with headquarters at Atchison. **E. M. Bishop**, trainmaster on the Arkansas division at Little Rock, has been transferred to the Hoxie and Doniphan districts to succeed Mr. Stanley. **G. W. Raney** has been appointed trainmaster of the East and West and Herrin districts of the Illinois division with headquarters at Bush, Ill., succeeding **C. W. Exline**, who has been transferred to the St. Louis district of the eastern division with headquarters at Jefferson City, Mo. **B. C. Murphy**, trainmaster on the Louisiana division with headquarters at Monroe, La., has been transferred to the Paragould district of the Memphis division, with headquarters at Wynne, Ark., succeeding **M. F. White**, who has been promoted to inspector of passenger transportation, with headquarters at St. Louis, succeeding **J. H. Jackson**, deceased. **R. H. Gragg** has been appointed trainmaster on the Louisiana division, with headquarters at Monroe, replacing Mr. Murphy. **E. K. Lucy** has been appointed assistant trainmaster on the Colorado division, with headquarters at Hoisington, Kan. **C. A. Hughes** has been appointed assistant trainmaster on the Wichita division, with headquarters at Wichita, Kan. **F. O. Tobias** has been appointed operating rules instructor, with headquarters at St. Louis, succeeding **M. McKernan**, who retired from active service under the retirement plan of the company on July 1.

Traffic

F. E. Mader has been appointed general agent of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Detroit, Mich.

E. W. Martindell, traffic manager of the Graysonia, Nashville & Ashdown, with headquarters at Denver, Colo., has in addition been appointed traffic manager of the San Luis Valley Southern.

L. G. Tuttle, chief clerk of the tariff bureau of the Chicago, Rock Island & Pacific at Chicago, has been promoted to chief of the tariff bureau, with headquarters at the same point.

James H. Higgs, automobile editor of the St. Louis Globe Democrat, St. Louis,

Mo., has been appointed general advertising agent of the Wabash with headquarters at St. Louis, Mo.

E. Kancher, special representative of the traffic department of the Kansas City, Mexico & Orient at Wichita, Kan., has been promoted to assistant general freight agent, with headquarters at the same point.

John T. Cochrane, Jr., general agent of the executive department of the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., has been promoted to general freight agent in charge of solicitation, with headquarters at the same point.

O. P. Kellogg, assistant general freight agent of the Chicago, Milwaukee, St. Paul & Pacific at Seattle, has been promoted to general freight agent, with headquarters at the same point. **Harry Rowe**, division freight and passenger agent at Seattle, has been promoted to assistant general freight agent at the same point.

R. J. Allyn, general agent in the freight department of the New York Central at Chicago, has been promoted to assistant general freight agent, with headquarters at Detroit, Mich., succeeding **F. E. Lewis**, who has been transferred to Cleveland, Ohio. Mr. Lewis replaces **J. B. Clizbe**, deceased, who held the title of division freight agent. That position at Cleveland has been abolished.

J. E. Carter, assistant general freight and passenger agent of the Southern Pacific lines in Louisiana and Texas, with headquarters at Lake Charles, La., has been appointed assistant general freight agent, with headquarters at Houston, Tex. **Joseph Spear**, division freight and passenger agent at Alexandria, La., has been promoted to succeed Mr. Carter at Lake Charles. Mr. Carter succeeds **A. J. Morriss** who has been appointed general agent of the Southern Pacific Steamship Lines (Morgan Line), with headquarters at Houston.

William R. Cox, who has been appointed freight traffic manager of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on March 5, 1886, at Shippensburg, Pa. He entered the service of the Pennsylvania in February, 1903, as a record clerk and served with that railroad consecutively to March, 1920, as report clerk, voucher clerk, rate clerk, correspondence clerk, assistant chief clerk, chief clerk to the assistant freight traffic manager, chief clerk to the freight traffic manager, and chief clerk to the traffic manager. From August 1, 1921, to July 1, 1924, Mr. Cox served as division freight agent successively at Columbus, O. and Youngstown, O., and on the latter date he was appointed assistant general freight agent at Pittsburgh, Pa. The following year he was appointed coal and ore agent at Cleveland, O., and on October 16, 1927 he was promoted to coal traffic manager at Pittsburgh, which position he held until July 1, when he was promoted to freight traffic manager.

H. G. Powell, traffic manager of the Illinois Terminal Company, with headquarters at Alton, Ill., has in addition been appointed steam lines traffic manager of the Illinois Terminal System, which comprises the Main division of the Illinois Traction, the St. Louis & Illinois Belt, the St. Louis Electric Terminal and the St. Louis, Troy & Eastern. **H. A. Touhy**, acting traffic manager of the Illinois Traction System, with headquarters at Springfield, Ill., has been appointed electrified lines traffic manager of the Illinois Terminal System, with headquarters at St. Louis, Mo. **E. L. Bodge**, traffic manager of the St. Louis, Troy & Eastern, with headquarters at St. Louis, has been appointed coal traffic manager of the Illinois Terminal System, with headquarters at the same point. **E. E. Kester**, assistant traffic manager of the Illinois Traction System, with headquarters at Springfield, has been appointed assistant traffic manager of the Illinois Terminal System, with headquarters at the same point. **W. H. Blair**, general freight agent of the Illinois Traction System, with headquarters at Springfield, has been appointed general freight agent of the Illinois Terminal System, with headquarters at St. Louis. **J. A. Gorman**, chief of the tariff bureau of the Illinois Traction System, with headquarters at Springfield, has been appointed chief of the tariff bureau of the Illinois Terminal System, with headquarters at St. Louis.

Engineering, Maintenance of Way and Signaling

H. E. Beard, acting chief engineer of the Kansas City, Mexico & Orient, with headquarters at Wichita, Kan., has been promoted to chief engineer, with headquarters at the same point. **J. G. Wolfe** has been appointed division engineer, with headquarters at San Angelo, Tex.

Elmer Irving, engineer maintenance of way on the Central Pennsylvania division of the Pennsylvania, with headquarters at Williamsport, Pa., has been granted a leave of absence on account of illness. **D. P. Beach** has been appointed acting engineer maintenance of way of this division, in place of Mr. Irving.

A. H. Tasker, supervisor of telegraph and signals in the Central region of the Pennsylvania at Pittsburgh, Pa., has been appointed division engineer of the Conemaugh division, with headquarters in the same city. **F. L. Scott**, draftsman on the Buffalo division, has been promoted to assistant to the division engineer, of the Erie and Ashtabula division, with headquarters at New Castle, Pa.

J. F. Pinson, division engineer of the Coast division of the Chicago, Milwaukee, St. Paul & Pacific with headquarters at Tacoma, Wash., has been promoted to the newly created position of

assistant engineer of maintenance of way of the lines west of Mobridge, S. D., with headquarters at Seattle, Wash. **R. H. Smith**, division engineer on the Trans-Missouri division with headquarters at Mobridge, S. D., has been transferred to the Coast division, to succeed Mr. Pinson. **C. J. Swane**, division engineer on the Musselshell division with headquarters at Miles City, Mont., has been transferred to the Northern Montana division with headquarters at Lewiston, Mont., succeeding **W. E. Ring**, who has been transferred to Miles City with jurisdiction over both the Musselshell and Trans-Missouri divisions.

Mechanical

G. S. West, assistant master mechanic on the Pennsylvania, with headquarters at Meadows, N. J., has been promoted to master mechanic of the Conemaugh division, with headquarters at Pittsburgh, Pa.

Special

C. K. Howard, general tourist agent on the Canadian National, with headquarters at Montreal, Que., has been appointed manager of the tourist and convention bureau of the system, with the same headquarters.

Obituary

Nelson W. Proctor, commerce attorney for the Louisville & Nashville, with headquarters at Louisville, Ky., died in that city on June 6.

Elmer J. Remensnyder, assistant purchasing agent on the Pennsylvania, with headquarters at Philadelphia, Pa., died in that city on June 27.

A. F. Bowles, superintendent of the San Joaquin division of the Southern Pacific, with headquarters at Bakersfield, Cal., died in the Southern Pacific hospital at San Francisco, Cal., on June 10 after a short illness.

George Thompson, who was master mechanic on the Union Pacific at Omaha, Neb., from 1903 to 1906 and superintendent of motive power of the Denver, Northwestern & Pacific (now the Denver & Salt Lake), with headquarters at Utah Junction, Colo., from 1906 to 1913, died at Los Angeles, Cal., on June 27 following an illness from acute indigestion. Since 1913 Mr. Thompson had been with the Oxweld Railroad Service Company and at the time of his death he was district superintendent at Los Angeles.

Operation of the Clinton & Oklahoma Western, which has been leased to the Atchison, Topeka & Santa Fe, was taken over by the latter company on June 30. The C. & O. W. line extends from Clinton, Okla., to Cheyenne, 58 miles.